THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · THE RAILWAY OFFICIAL GAZETTE

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
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Annual subscription £4 10s. 0d. post free. Single copies, Two shillings
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Vol. 95] FRIDAY, DECEMBER 14, 1951 [No. 24

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B.T.C. Stock Issue

FOR the first time since its formation nearly four years ago, the British Transport Commission has raised new money. Last week it issued at par to the National Debt Commissioners £60 million one-year 1¾ per cent. stock guaranteed by the Treasury; there is no issue to the public. The loan has been necessitated mainly by the rise in outgoings caused by the time-lag between increases in wages and costs and the authority to advance transport charges to set off those rises; in addition, it has been necessary to repay loans in cash, besides fulfilling the statutory obligations laid down in the Transport Act. The result has been a diminution since 1948 of the liquid assets acquired with the vested undertakings. Thus liquid assets which at the end of the first year of nationalisation amounted to some £235 million, had been reduced during 1949 to £160 million, and to £110 million the next year. That borrowing would be necessary has been clear for some time, and this was confirmed by Sir Reginald Wilson, Comptroller of the B.T.C., on November 1, in justification of the Commission's Passenger Charges Scheme before the Transport Tribunal. The short-term borrowing can do little more than tide the Commission over a lean period. The amount, £60 million, is small in relation to the need for capital investment, apart from considerations of the Treasury limitation on the latter, and the physical limitations imposed by material and manpower shortages. The process of what Lord Hurcomb, Chairman of the B.T.C., has called patching—with reference to the unsatisfactory nature of thus maintaining the Commission's plant—must continue, and without the possibility as yet of building up adequate reserves. The amount of the issue presumably is the minimum necessary to meet the immediate needs of the B.T.C. In the present state of the market, it would have been impracticable to offer a substantial loan to the public; it may be, however, that when this short-term loan is paid off, the gilt-edged market will have recovered sufficiently for the Commission to issue a greater amount of stock carrying a longer date.

Freight Movement on British Railways

IN recent issues we have dealt at some length with statistics relating to freight movement on the various Regions of British Railways. Elsewhere in this issue a railway operating officer of long experience contributes an article in which he draws attention to a number of the factors which enter into this matter and which affect the speed of movement of freight traffic. The very dense industrial area served by the London Midland Region results in more than normal time being spent in "tripping." In recent months the Region has played an important part in keeping winter traffic fluid by affording facilities to trainloads of traffic for other Regions. The geographical location and characteristics of much of the London Midland Region system involve slow working in and about private sidings and such like, and high speed of movement has never been possible of achievement on that system. On the other hand freight train loads are very heavy and, in a recent period, not only exceeded that of any other Region but also showed the greatest increase over 1950. Factors such as these must necessarily be given their due importance when considering the relative achievements of the various Regions of British Railways.

Teamwork in Industry

TODAY, both sides of industry are realising more and more that staff contentment does not rest solely on the amount of the weekly wage, and that although efficiency and technical skill count for a great deal, the relationship existing between all members of an industrial group mean even more. This was frequently more intimate in the smaller unit of former days even if working conditions were not always as good. Mr. R. P. Biddle, Docks & Marine Manager, Southampton, expressed the view at a recent meeting of Rotarians in Guernsey that perhaps the most outstanding problem in industry was to recapture as far as possible the old atmosphere, wherein employer and worker got together to do a job worth doing not merely for their own sakes, but for the benefit of the community they served. This attitude he considers a vital factor in efficiency and in securing increased output. Mr. Biddle, who has had many years of experience of industrial affairs relating to ports and ships, stressed the need for extending joint consultation in industry, which, coupled with welfare, provided the best means of maintaining our standard of life and achieving the highest degree of productivity on which this standard depends.

New Outlet for Rhodesia

THE Higher Authority of the Rhodesia Railways, composed of representatives of the Governments of Southern Rhodesia, Northern Rhodesia, and Bechuanaland, has agreed on the route of a new line about 390 miles in length, between Bannockburn, on the Shabani branch in Southern Rhodesia, and Guija in Portuguese East Africa, the terminus of a line from the port of Lourenço Marques. This will provide a much-needed second route to the coast for the territory, relieving the congested line between Salisbury and Beira, at present the only direct outlet. Work is to begin early next year on the construction of the Southern Rhodesia section of the line, about 200 miles.

An American group of consultants examined three possibilities: a link betwen West Nicholson and Beitbridge, on the Southern Rhodesia—South Africa border; the route adopted, *via* Guija; and the doubling of more than 300 milles of the Beira line. It has also been decided that the next project to be undertaken will be the long-proposed Sinoia-Kafue cut-off line which will shorten the distance between the copper belt of Northern Rhodesia and the port of Beira by more than 500 miles; the scheme at present under consideration is linked with an important hydro-electric scheme on the River Zambesi.

Overseas Railway Traffics

THE advance in operating expenses of the Canadian National and Canadian Pacific Railways continued during the month of October. The movement was most pronounced on the C.N.R., where expenses at £16,692,000 were up by £2,108,000, an increase which was more than three times greater than the improvement in operating revenues. As a result, C.N.R. net revenue fell by £1,444,000 to £2,035,000. On the C.P.R., working expenses for the month amounted to £11,940,000 and exceeded gross earnings by £666,000. On the aggregate both C.N.R. and C.P.R. operating revenues were considerably higher than in the previous year, though, due to advances in expenses, net revenue fell by £2,549,000 to £12,536,000 on the C.N.R. and from £9,063,000 to £6,535,000 on the C.P.R. Antofagasta (Chili) & Bolivia traffics made a further £66,170 improvement during the fortnight ended November 30 and aggregate receipts for the current 48 weeks were £2,621,546 higher at £5,916,570.

Rapid Survey Work in East Africa

NEW railways are seldom considered today unless they will provide transport for vital rearmament or other essential materials including foodstuffs. But when one is seriously considered, the outlay required has almost invariably to be justified by rapidly-prepared engineering and traffic estimates. The 250-mile line proposed to tap the Kilembe copper mine near the Uganda-Belgian Congo frontier—described elsewhere in this issue—is no exception. Aerial reconnaissance in 1950 had enabled obligatory points on the new route to be fixed in advance, and on subsequent ground reconnaissance the general alignment was selected. Field-work of the 247-mile location survey began in January, 1951, and was completed by four parties in about ten weeks; also the drawings, estimates, and report were submitted within five months of the beginning of the survey. The speed of such survey work necessarily depends on the size of the available staff, the difficulties of the topography, the density of the jungle, and the means of transport and other facilities obtainable. It is clear that in this instance some broken, hilly country, forest, and elephant- and papyrus-grass swamps were encountered, and that borings were necessary in one swampy area; lack of all roads and coolie porterage were further handicaps. The completion of the work in so short a time is therefore most creditable.

Modern Motive Power Plant

COMPLETE modernisation of the Motive Power Depot at Dunfermline, Scottish Region, has given British Railways one of the best equipped depots of its kind in the country. These improvements have been carried out to meet present-day needs and also to provide for increasing demands which will arise from an expansion of the coalfields in the area. Equipment now installed includes an electrically operated coaling plant of 200 tons capacity, which has replaced an obsolete type of manual coaling stage, and a powered elevator for the disposal of ash. There is also a new locomotive turntable of 70-ft. dia. equipped with a vacuum tractor engine. Other improvements include modern lighting throughout the depot and electric drive for machine tools. The erection of this plant, which is described and illustrated elsewhere in this issue, was somewhat hampered in its early stages by running sand and soil problems encountered when excavating foundations for the ash plant, and before the construction of the turntable could be begun it was necessary to fill the foundations and divert a large culvert drain.

Passenger Stock for Rhodesia

IN other pages this week appears an article illustrating and describing the first class and second class carriages under construction for Rhodesia Railways by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. This new rolling stock is required to cope with increasing traffic and is built to 3-ft. 6-in. gauge. The carriages are of all-steel construction and integral design; they are heat-insulated, sprayed asbestos being applied to the inside surfaces of the bodyside and roof sheets. The roof is of clerestory design, and the floors are of dovetailed galvanised sheeting to which is cemented a covering of slab cork, this in turn being covered with felt and an overlay of linoleum. Side entrance doors open into an enclosed vestibule and telescopic gangways allow a passage between the carriages. There is a through corridor between the entrance vestibules and access is by fixed footsteps. The first class and second class carriages are similar in exterior appearance although they differ in the arrangement of seating and in the number of hinged berths.

Remote Control Signalling in Norway

A RECENT issue of the journal of the Norwegian State Railways describes the new signalling installation brought into use between Lier and Spikkestad. These stations are over five miles apart and the average gradient is nearly 1 in 70. This had a noticeably restrictive effect on the working of the trains, which are electrically operated, and total about 70 daily. It was decided therefore to build a passing place at Lierasen, but, because conditions did not call for anyone to be in attendance for other purposes and no station was needed, to adopt remote control signalling operated from a panel in the stationmaster's office at Spikkestad by coded currents. Both colour-light and position-light signals are used, as generally in modern installations in this part of Europe, and track circuiting is provided. The equipment at the passing loop is in a relay room alongside the track, and connected with Spikkestad by four wires contained in cables, one pair used exclusively for the actual controls and the other for the return indicating and detecting circuits. This is an example of a tendency which is making itself felt, as was indicated at the last International Railway Congress.

Main-Line Diesel for Waterloo-Weymouth Route

TWO months ago British Railways diesel-electric locomotive No. 10202 went into regular service on the Southern Region Waterloo-Exeter main-line, and although there had at one time been a suggestion that the first of the class, No. 10201, would return to the London Midland Region, after exhibition at the South Bank, it has since been generally assumed that the locomotive would go to the Southern Region. Speculation on the matter ceased with the announcement this week that No. 10201 had been taken to Ashford Works on the night of November 23-24 in preparation for service on the Waterloo-Weymouth line. The locomotive will go into regular service towards the end of January, after a period of trial, and though the schedules on which the locomotive will work have not yet been worked out, scope should be found on this route for its high availability. The performance of No. 10201 over the Weymouth route will be watched with no less interest than that of the sister locomotive between Waterloo and Exeter. Between Weymouth and Bournemouth the route includes some heavily-graded sections, and though over the 108 miles thence to London little hard uphill work is required, the diesel will not suffer from the absence of water troughs. The superior accelerative abilities of the diesel-electric locomotive on this route with frequent stops should also prove of considerable value.

British Railways Standard Uniforms

SOME grades of British Railways staff are likely to be issued with new uniforms before the end of the year, with a bulk issue to take place next month, and their arrival will be welcomed as they have been expected for some time. The new standard uniforms for men, which were agreed on with the trade unions, are of dark blue cloth. Peaked caps will be worn and the same metal cap badges will be used as before. There is a new style uniform for women staff, also in dark blue, but instead of a peaked cap, they are being issued with an attractive beret. Badges will be either the B.T.C. emblem with a band in the Regional colours or the British Railways totem in Regional colours according to grades. Apart from the fact that the new uniforms are smart, which will be noted in the examples illustrated in another page this week, there has been careful consideration of the practical side, from which a substantial saving in cost should result. Materials used for the manufacture of overcoats and caps will be shower-proofed and there has also been a big reduction in the different qualities of cloth required for the uniforms.

Further Increase in Freight Charges

NO time has been lost by the Minister of Transport, Mr. J. S. Maclay, in acting on the request of the British Transport Commission for authority to raise railway freight, dock, and canal charges. When a month ago, the Railway Executive, and shortly afterwards the London Transport Executive, accepted the Railway Staff National Tribunal award of wage increases to railwaymen, it was clear that any possible economies were quite insufficient to realise the additional sum needed by the Commission. The B.T.C. therefore asked the Minister under Section 82 of the Transport Act for a 10 per cent. increase in freight charges, subject to a maximum increase of 10s. a ton for merchandise by goods train and for perishables by passenger train and to special increases of 50 per cent. for returned empties and of something like 20 per cent. for "smalls."

The limitation of 10s. a ton for merchandise was meant to lighten transport costs in the case of some long hauls, such as traffic between the Scottish Highlands and the south, which for some time has been the subject of various requests to the Government of the day for a rebate to assist economic development of the Highlands. Ten days after being consulted by the Minister in accordance with the Act, the Permanent Members of the Transport Tribunal on December 3 advised Mr. Maclay in a memorandum, the text of which is given on other pages this week, to authorise a flat 10 per cent. increase in railway freight, dock, and canal charges. They did not favour "what is in effect a special surcharge" on smalls and returned empties traffic. The Minister took their advice and announced in the House of Commons on December 6, that the increase was to come into effect at the New Year. There was no debate, and Parliament rose next day for the Christmas recess.

The increases requested by the B.T.C. were calculated —always allowing for a certain falling off in traffics such as merchandise, which are particularly susceptible to road competition—to yield about £22 million in a full year. The modification suggested by the Minister's advisers is expected to reduce this to £21 million. Besides wage increases, not only for members of the three railway unions but also for other servants of the B.T.C., including "consequential" increases, the rise in the cost of materials and supplies, including, for instance, coal, as the result of the increase in miners' wages, is adding much, and quickly, to the Commission's outgoings. Mr. Maclay, and, in April last, his predecessor, Mr. Alfred Barnes, have made use of the more speedy procedure for raising rates laid down in Section 82 of the Transport Act. The more normal process of pleading a case for an increase in transport charges before the Transport Tribunal is so slow as to stultify the Commission's efforts to increase its revenue. As a result of the rapid rise in costs, it is very hard to assess what effect any rate increase is likely to have on the finances of nationalised transport. Nor is information as to costs given in detail sufficient to form any estimate. Thus on the question of wage increases, Mr. Maclay stated last week in the Commons that it was estimated that rises in wages and prices in 1951 would increase working expenses "by a least £40 million, excluding certain wage increases granted in 1951 but made retrospective to the end of 1950. About £26 million of this is in respect of increases in wages . . . of which about £18 million is represented by . . . the recent decision of the Railway Staff National Tribunal of November 7 last."

Now the wage settlement arrived at on February 23, which was retrospective to January 1, 1951, and applied only to British Railways staff, is reckoned to have cost the B.T.C. about £12 million in 1951; and the award of November 7 applies from November 26. It is presumably the former that Mr. Maclay chiefly meant—besides increases to other groups of B.T.C. employees—when he referred to back-dating to the end of 1950. His arithmetic, however, both here and elsewhere in his announcement recorded in our Parliamentary columns, is hard to follow.

Whatever their effects on the finances of the Commission, the new freight rate increases will cause rises in the price of steel and—additional to the effect of the miners' wage increase—of coal; and by causing a rise in prices generally they will do much to nullify the effects of the wage increases. It is quite clear, however, that if the B.T.C. is to pay its way as laid down in the Transport Act, it has had no other course than to raise charges. Possible economies are constantly being sought. A quicker and less cumbersome procedure for obtaining leave to raise charges will help to reduce the Commission's deficit, but it will not solve the problem. Meanwhile, the new Government is considering the whole problem of the nationalised transport organisation.

The Passing of the G.N.R.(I.)

THE agreement between the Governments of Northern Ireland and the Republic to take over the Great Northern Railway (Ireland) and the acceptance by the stockholders of proposed terms for distributing the purchase price of £4,500,000, mark the closing stages in the independent existence of a system which, though latterly beset by difficulties not of its making, has never relaxed its high standards. Its troubles may be said to have begun in 1935 when the newly-formed Northern Ireland Road Transport Board took over the G.N.R.(I.) buses north of the Border. Instead of the co-ordination of road and rail service in Northern Ireland provided for in the Road & Railway Transport Act of 1935, the buses taken over were used in competition with the G.N.R.(I.) train services there, causing losses to the company which wiped out the profit of working in Eire, where the company retained possession of both its rail and bus services.

The company repeatedly drew attention to this injustice, asking that if it were not allowed more freedom of operation in the North, the Dublin and Belfast Governments should take over its entire system, making equitable payment for its assets. Both the Northern Ireland White Paper issued in 1946, which outlined the merger of all railways in the Six Counties, and the Milne Report on transport in Eire, published in 1948, contained solutions of the company's dilemma, but because of the procrastination and unrealistic attitude of the two Governments, nothing was done.

Little of the difficulties of the company was apparent to the travelling public. The working remained brisk, the locomotives and rolling stock were extremely well kept, new coaches and railcars were placed in service, and other new facilities were offered. Outwardly the system showed every sign of prosperity. The stockholders sacrificed their dividends, so that what money there was should be put back into the undertaking to maintain its efficiency, and in the hope that justice would be done and a fair solution eventually found. The officers and staff, between whom a happy spirit had long existed, showed more than usual

loyalty. Much of the credit for this attitude is due to Mr. G. B. Howden, the General Manager, who has always shown a benevolent interest as regards the welfare of the employees.

By the end of 1950 matters had become so serious that the directors received the authority of the stockholders to suspend railway working throughout the system. Lord Glenavy, the Chairman, told the stockholders that the liquid resources were under £1,000 and that they were rapidly reaching the point where non-liquid assets would have to be used to meet cash liabilities—not allowing for the purchase of essential new materials. This crisis had the effect of stirring the Governments to action, and throughout this year a series of meetings of Ministers, at some of which the company was represented, was held in Dublin and Belfast.

As a stop-gap measure the two Governments assured the company that they would meet any liabilities incurred in maintaining existing services. They then offered to acquire the system jointly for £3,900,000, based on Stock Exchange quotations, although Government nominees had assessed its break-up value as £10,876,492. This offer was rejected by a large majority of the stockholders who then asked for the question to go to arbitration. To this the Governments would not agree, considering themselves arbiters between the company and the public, and deadlock was thus created. After negotiations which dragged on through the year, the Governments intimated last month that they might consider a voluntary sale for £4,500,000; failing acceptance they would take over the railway compulsorily at the lower figure. The stockholders were left with no alternative, and while setting on record their sense of injury at the unfair treatment meted out and particularly at the continued refusal to refer the matter to arbitration, consented to the figure on terms stated in an editorial note in our November 16 issue.

It will probably be two or three months before a detailed statement is forthcoming from the two Governments on the new organisation of the system, which is to be administered by a board composed jointly of C.I.E. and U.T.A. representatives. Certainly no privately-owned railway could hand over to public ownership a property more physically sound or with a reputation more jealously guarded than the G.N.R.(I.) It is too early to say what effects the take-over will have on the services and how they will be combined with those of the U.T.A. and C.I.E. Special safeguards are being provided in the case of cross-border services, which have complicated the working since Partition.

The Great Northern was formed on April 1, 1876, by the amalgamation of four railways: the Dublin & Drogheda; Dublin & Belfast Junction; Ulster; and Irish North Western. The first section of the Ulster Railway, from Belfast to Lisburn, was opened in 1839, and the Dublin & Drogheda Railway, in 1844. Through communications between Belfast and Dublin became possible in 1852. The system now comprises 543 route-miles, 319 in Northern Ireland and 224 in the Republic. The greatest engineering work on the system is the imposing viaduct over the Boyne at Drogheda, opened in 1855 and rebuilt in 1932. The Dublin terminus, Amiens Street, is a fine building in the Italian style. All repairs to rail and road vehicles are carried out at the well-appointed Dundalk Works, which are to continue operation.

The company has always been ready to try out new methods of traction when they appear justified. It was an early user of steam railcars, which it put on the Belfast and Dublin suburban services in 1905. The first internal-combustion railcar appeared in 1934, after study of the working of petrol railcars on the narrow-gauge County Donegal Railways, jointly operated by the G.N.R.(I.) and the N.C.C. This form of transport has been greatly developed for both secondary and main line working. Steam traction has not been neglected; the fastest workings are undertaken by 4-4-0 compound locomotives introduced in 1932. The coaching stock is of a high standard, particularly that used on the Belfast-Dublin-Cork "Enterprise" service, operated in conjunction with Coras Iompair Eireann.

In three-quarters of a century the Great Northern has established a tradition which has earned it respect far beyond the shores of Ireland, and will be remembered long after the railway assets are merged with the existing organisations north and south of the Border.

London's Next Tube

ONE of the two new tube railways proposed by the London Plan Working Party, whose report we summarised in our July 22, 1949, issue, and known as Route "C," was to run from the Tottenham district to Croydon, taking in Kings Cross, Euston, Oxford Circus, Victoria, Stockwell, and Streatham. The other (Route "D") was to begin on the Chingford and Enfield branches of the Eastern Region and serve Liverpool Street, Fleet Street, the Strand, and Victoria, with an unspecified western prolongation. Both were to be tubes of standard (12 ft.) dimensions, in contrast to other large-diameter (17 ft.) tubes under the central area to link existing suburban lines south and north of the River Thames, operated by full-size stock.

Route "C" was designed with four main aims: (*a*) to provide a new facility in the central area by connecting Kings Cross and Euston in the north with Oxford Circus, Green Park, and the Westminster business area in the south, and, conversely, giving Southern Region passengers arriving at Victoria a direct route to the West End, Oxford Street, and the Euston Road area, without the change at Charing Cross; (*b*) to relieve the heavily-loaded Piccadilly Line, especially north of Kings Cross; (*c*) to provide a badly-needed tube facility for the suburbs of Tottenham, Edmonton, and Walthamstow; and (*d*) to provide a new tube line for the relief of the heavy local traffic on the main road to Croydon. As it warrants a higher priority than Route "D," both for the new facility it will give to a densely-populated suburban area, and the valuable new connections it will provide in the central area, more detailed planning has been given to it. It has not yet received Government approval, however, and no estimate of cost or the likelihood of the date of construction can be given, but it seems likely that Route "C" will be London's next tube. As such, it was described by Mr. F. G. Maxwell, Operating Manager (Railways), London Transport Executive, in a paper read before the Railway Students' Association on December 5.

The route between the Seven Sisters Road and Victoria has been fixed, but beyond Seven Sisters alternative alignments are being examined. One proposal is for the line to remain in tube beneath Tottenham, the Lea Valley and part of Walthamstow, rising to the surface near Wood Street. Another is to bring the line to the surface between Harringay Park and South Tottenham and cross the Lea Valley on the surface alongside the Tottenham and Forest Gate line tracks to Black Horse Road, whence a further section of tube would link it with the Chingford line at Wood Street. The final decision is likely to rest on detailed estimates of the costs of each alignment and those of the two possible depot sites in the Lea Valley.

At Manor House the new tube would use the present Piccadilly Line station; the Piccadilly Line would be diverted to run direct from Finsbury Park to Turnpike Lane. At Finsbury Park the new line would use the present Northern City Line station, as it is presumed by that time the Northern City Line trains will have been diverted to the main line station. Between Finsbury Park and Kings Cross the original direct alignment, with no intermediate station, has been amended since the publication of the Working Party report; it has now been decided to take Route "C" a little to the east to provide cross-platform interchange with the Northern City Line at Highbury. Cross-platform interchange with the Northern, Piccadilly, or Circle Lines at Kings Cross will not be possible; each will be at diffierent levels with escalator or staircase connection. At Euston there will be cross-platform interchange with the City loop of the Northern Line.

Another variant of the original report is the insertion of an interchange station at Warren Street; there is a long-term possibility of re-siting the Circle Line stations along

the Euston and Marylebone Roads, and Warren Street could be an interchange station between the Circle and two tube lines. At Oxford Circus there would be cross-platform interchange between Route " C " and the Bakerloo (but not the Central) Line. The extra traffic would necessitate extensive rebuilding of the station with a new booking hall under the Circus itself. Interchange with the Piccadilly Line at the other main West End station, Green Park, would be by subway. The proposed new Routes " C " and " D " cross at Victoria, and a new tube station, with platform interchange, would be situated under the bus station forecourt. Escalator connections would be made with the Southern Region, and District and Circle Line stations.

Although it is intended ultimately that the line should continue southwards from Victoria, the northern section is considered to warrant the greater priority. Nevertheless, experience is stated to have shown that a tube line with one terminus in the suburbs and the other in the central area is unsatisfactory as a balanced traffic in both directions cannot be achieved and there is a depot at the outer end only. For this reason, Route " C " may have to have a temporary western outlet, which might later be transferred to Route " D "; this would be in tube from Victoria to a junction with the Wimbledon branch of the District Line at Walham Green.

The ultimate southern alignment of Route " C " would take it *via* Vauxhall, Stockwell, and thence below the main road to Croydon, with interchange stations at Vauxhall (Southern Region); Stockwell (Northern Line); and Brixton, Streatham Hill, Streatham, and Norbury (all Southern Region). At Croydon the obvious alignment was beneath the main road, but this would leave out East Croydon Station, with its heavy potential interchange traffic. By a compromise it has been decided to provide a stub branch from West Croydon to East Croydon and continue the line in tube below the High Street to rise to the surface near South Croydon, where a depot is envisaged.

The route in the Central area is remarkable both for the number of interchange stations and its directness, which would have been impossible when the original tubes were planned because of the need to follow streets as far as practicable to avoid heavy payment in compensation. The saving in wear and tear resulting from the absence of sharp curves is now considered to outweigh the cost of easements.

Freight Movement on British Railways

By a Railway Operating Officer

ANYONE fully versed in freight train operating who has read the articles written by a correspondent which appeared in the issues of *The Railway Gazette* for October 5 and November 2 and 30 will realise that there are other factors besides speed of working to bear in mind in connection with the movement of freight traffic.

The speed of working as shown in *Transport Statistics* is governed by the total train engine time worked by all classes of train and trip engines. Where traffic is dense and where a considerable amount of " tripping " between collieries and marshalling yards occurs, and where the working of traffic to junctions for exchange with other Regions is involved, the engine time used is considerable and relatively much in excess of that for longer runs. The number of collieries, private sidings and works which have to be served also has a considerable bearing on the power employed in relation to train-mileage.

The London Midland Region, because of its geographical position, serves a very dense industrial area with a multiplicity of private sidings, collieries and works. The line occupation is very heavy and, in many instances in the industrial parts of the Midlands, high speeds cannot be attained. This feature has always obtained with the London Midland Region.

A perusal of the statistics will show that the London Midland Region total freight train miles are approximately one-third of the British Railways total, and this is a factor which must be borne in mind in relation to the total speed of working on account of the heavy slow moving traffic which is involved.

Dealing with the question of results it is noticed the correspondent refers to the London Midland train load, but in fairness the net ton-miles per train-mile figures for all Regions are set out below:—

Region	Four-week period ended October 7			
	Total net ton-miles		Net ton-miles per train-mile (train load in tons)	
	1951	Increase, %	1951	1950
London Midland ...	662,624	5·1	186·89 (107)	174·97 (100)
Western	334,945	2·0	167·48 (102)	163·63 (100)
Southern	84,506	10·6	132·12 (105)	125·87 (100)
Eastern	380,000	3·4	176·40 (102)	174·28 (100)
North Eastern ...	185,404	5·4	157·14 (105)	150·04 (100)
Scotland	186,600	4·8	111·19 (101)	110·33 (100)
All Regions ...	1,834,079	4·4	163·80 (104)	157·91 (100)

For the four weeks ended October 7, 1951, it will be seen that the freight train load on the London Midland Region exceeds that of any other Region and showed the greatest increase over 1950.

The correspondent has been at pains to indicate that the average wagon load for merchandise traffic on the London Midland Region is only 3·82 tons, but he conveniently overlooks the fact that their average wagon load of minerals, Classes 1-6, is 12·27 tons.

It seems evident from the last paragraph of the article which appeared on November 30 that the writer is unfamiliar with the whole of the factors which enter into freight train working on the London Midland Region and, in that case, he is unfamiliar with the organisation—based on long experience—which plans and controls the freight movement on that Region.

Whilst it is healthy that there should be a feeling of competition between Regions in regard to results, it is not practicable to compare one with another on account of the varying circumstances, density, and so on. Any such comparison should be on previous performance on that particular Region, but this again is influenced by various factors including diversions from one Region to another, and the considerable variations which occur today in the flows of traffic, particularly coal.

To maintain maximum fluidity of movement it is the policy of the Railway Executive to divert traffic from one Region to another in times of stress, and the London Midland Region is regularly taking train loads of traffic to the easement of other Regions and, when required, other Regions assist similarly.

To sum up, therefore, it must be stated that operating results must not be judged on figures only; due regard should be paid to particular circumstances which influence the figures. It is foremost in the minds of all railwaymen today that the best course to pursue in the national interest is to work for British Railways as a whole, disregarding regional boundaries and operating areas. This is the policy being carried out, and undoubtedly it is the right one, with which no one can quarrel.

MOBILE TRACK GANGS IN THE UNITED STATES.—In the United States the 40-hr week for permanent way men has raised problems for railway managements in keeping down the cost of track maintenance. The St. Louis-San Francisco Railroad has solved the problem in large measure by a reorganisation of its permanent way work. The previous 602 section gangs, each consisting of a foreman and three or four men, have been reduced to 185, and some roadmasters have none left on their territory. Their place has been taken by 90 district gangs, each completely mechanised and composed of 10 to 16 men, made highly mobile by being provided with 159 road lorries to get them to and from the locations at which track repairs are in progress. The larger gangs, with their power tools, complete the work in considerably less time than did the smaller gangs by manual methods.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Third Class Sleeping Cars

December 8

SIR,—Mr. P. W. B. Semmens is quite right in suggesting in your December 7 issue that British Railways have dropped marking their third class compartments either by figure or word.

The exception to the rule, however, will be third class sleepers. As passengers join these at varying times during a night journey it was felt this might prove an added convenience in helping them more quickly to locate their sleepers.

Yours faithfully,

C. S. LOCK
Press Officer

The Railway Executive,
222, Marylebone Road, London, N.W.1

Railway Staff Problems

December 3

SIR,—In answer to "Class 1 Clerk's" letter in your November 30 issue, may I say although the present promotional arrangements leave much to be desired, and that new thought on railway staff problems is overdue, one cannot get away from the fact it is fundamentally correct for the management to retain the right to make appointments.

The alternative to the present scheme is for the Executive to take a direct and personal interest in each individual by appointing him to a position for which he is most suited, make systematic enquiry from time to time to see that he is being considered and obtains suitable promotion, and review the history of each person at intervals to eliminate undue favouritism and inefficiency.

Yours faithfully,

ROBERT W. LEWIS

104, Leggatts Way, Watford, Herts

Reorganisation of Nationalised Transport

December 6

SIR,—I am delighted to read in your November 23 issue that you consider there is a case for the removal of some of the top hamper which holds British Railways floundering in what is undoubtedly a very heavy sea. It has for some time been the growing conviction of the British public that the only paying thing on the railways is the traveller, and before this long-suffering citizen is subjected to a further dose of 'revised fares' for a service which at best can be described only as mediocre I should like to see adopted the suggestion of Mr. Reader Harris in the last Parliament that an enquiry be made into the workings of all nationalised industries.

Up to the present it has been impossible to obtain a clear picture of the items of income and expenditure which have led the British Transport Commission perennially to declare losses of an almost astronomical figure. Interesting facts have emerged, however, from time to time from the closely-guarded archives of Marylebone, and it occurs to me as a possibility that the cause of our troubles may not be in the main either the breakdown in real joint consultation, staff shortages, or even the dividends paid to wicked shareholders.

What to me seems to be a more likely explanation is that during the last four years there appears to have been a meteoric rise in the number of unproductive staff on the railways to deal with the allegedly necessary forms and returns relating to the work of the productive staff. There is a lamentable shortage of permanent-way men, lengthmen, gangers, and labourers, but I find that in 1948 the total numbers employed by the Transport Commission rose by 25,359 and in 1949 by a further 2,501. The staff of the Railway Executive alone numbers some 560 and a sum of £215,880 has been authorised to make its premises habitable.

I should like to see in operation a system such as that suggested by Mr. Peter Thorneycroft in the House of Commons last August when he advocated delegating the management of the railways to Regional officers when there would be some hope of finding a man 'big enough to do the job.' There is no need for an executive such as we have today to effect the economies of unification. The one great economy which can be effected is that in unproductive manpower—most efficiently by abolishing it.

Yours faithfully,

PETER J. BENDER

4A, Forest Glade, Highams Park, E.4

Control of Capital Investment

December 10

SIR,—On page 621 of your December 7 issue you published an editorial article, "Control of Capital Investment." The third paragraph contains the following passages: "The tendency to spend large sums on passenger stations needs curbing firmly. Much capital sunk on station extensions has proved unproductive."

I am not aware of any recent tendency to spend large sums on passenger stations, nor have I heard of any complaints from anybody that the standard of station buildings in the British Isles has been or is luxurious. It is true that many of the early railway stations were generously and substantially built, and what a blessing this has been! On the other hand, many of the existing stations have now reached, or are nearing, the end of their usefulness and, having been built for conditions which no longer exist today, prevent efficient and economic working. They are a source of trouble to those who have to maintain them and cause much unnecessary and unproductive expense in upkeep. They are, in addition, causing great inconvenience to the travelling public. They are the worst possible advertisement for a great transport undertaking and have for years provided authors, music-hall artists and cartoonists with an inexhaustible subject for lurid descriptions and jokes.

I agree that it may be difficult or often impossible to assess an increase of revenue due to improvements in passenger stations. On the other hand, it needs no imagination to realise the damage to the reputation of any transport undertaking, or for that matter any other undertaking, if its premises are one of the country's stock jokes and give just cause for complaint by the transport users. Such damage to reputation must of necessity result in financial losses. It must not be overlooked that many people from this country and all foreigners who visit Britain have had opportunity to compare with what they have seen elsewhere. Is it going to be an economic advantage to British Railways if such a comparison is unfavourable to them?

The Railway Executive or the B.T.C. should not be accused of frivolous extravagance if it has the desire to make passenger stations as fit for the purpose they serve, as convenient and attractive to the public and as economical in maintenance as is financially possible. Your correspondent seems to imply that the Executive or the B.T.C. is driven by an unreasonable desire to sink money into extravagant station buildings. Anyone who knows the facts will agree that this is not so.

Yours faithfully,

F. F. CURTIS
Architect to the Executive

The Railway Executive,
222, Marylebone Road, London, N.W.1

THE SCRAP HEAP

Good Enough for Punch

The Chicago Transit Authority, which operates the city's rapid transit system, buses and trams, has started printing a daily joke on the backs of tickets.—*From "The Daily Telegraph."*

Flats Named after C.M.E.'s

In view of the associations with Battersea of the former Southern Railway and its constituent companies the London County Council is considering naming new blocks of flats there after locomotive engineers. The names proposed include Beattie, Crampton, Cudworth, Kirtley, Mansell, Marsh, Martley, and Stroudley.

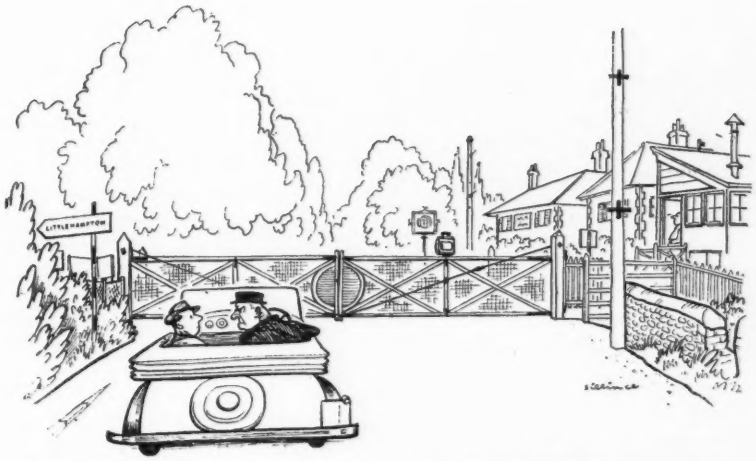
Railway Hotels

Announcements of the sale by the Railway Executive of a number of its hotels recall a long chapter in iron-road history, since, from the beginnings of railways, there existed links between them and hotels or inns. Thus, there is mention of a place where an economical management arranged that intending passengers should book their tickets at a convenient inn, and in a pamphlet of 1862 attention was called to the wisdom of spending the night before a railway journey as near as possible to the station in case of oversleeping. By the 'sixties it had become a regular policy to build station hotels at the great centres of population, and many belonged to railway companies.

When William Chambers, the publisher, was writing of railway hotels in 1886 . . . the St. Pancras Hotel had not yet been opened, but he regarded the Charing Cross Hotel as "the most remarkable in London . . . the noblest railway hotel without doubt in the country . . . the one most nearly approaching some of the greatest of the hotels of New York and Paris."—*From "The Manchester Guardian."*

G.N.R. Train Tapestry

The tapestry reproduced below of a G.N.R. train in the 'eighties was embroidered in his spare time, between 6 p.m. and 6 a.m. on weekdays, during his working life by a G.N.R. guard, William Fuller, of Hatfield (1857-1932). The original is 8 ft. 5 in. long, and the ten colours have worn well; the rear van alone comprises some 10,000 stitches. The number given to the engine (No. 4) is incorrect, as it was not borne by any sister engine to the famous Stirling "single" No. 1. The four types of vehicle are depicted with chain as well as screw couplings.



"There, what did I say? I arrive here every day at 10.12 *a.m. precisely, and precisely at* 10.12 *a.m. every day he slams the thing in my face*

[*Reproduced by permission of the proprietors of "Punch"*

Engine Chases Dog

A small black-and-white dog tied to a seat at Derby Station broke loose and ran away along the track. A light engine was brought out of a shed and raced after it. But the dog was still missing after a 24-hour search.—*From the "Daily Mail."*

Tauto'o ɣy

"Ba! Ba!" announced the station loudspeaker. Curiosity compelled a glance through the train window. It was "Bath Spa." Will British Railways please drown this tautological mongrel before we all get used to it?—*From a letter to "The Times."*

Trunk Route

An elephant eluded the attentions of the special patrol which is used against its kind on a section of the Rhodesia Railways which runs through a dark forest. It left an uprooted tree by the line and the first train that came along had 29 carriage windows broken by the branches.

King Gong

(*The latest anti-fog device is a gong in the engine cab*)

Blow the bugle! Beat the drum!
Detonators, all be dumb!
Here's deliverance, sought for long,
Demonstrated by King Gong.

Travellers, your voices raise,
Audibility to praise,
In one glad, accordant song
To fog's conqueror, King Gong.

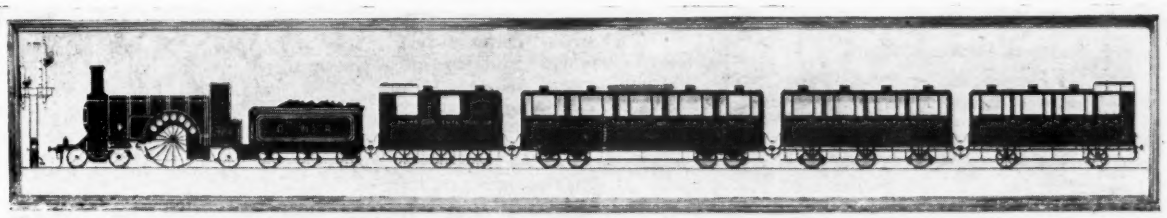
Engine drivers, raise a cheer,
Fog no more need cause you fear;
Forge ahead with laugh and song,
Safely guarded by King Gong.

It may seem a trifle queer
Driving puffer trains by ear,
Listening as you lurch along
For a message from King Gong.

Passengers may now take heart,
If it's foggy at the start,
For the journey won't take long
Speeded onward by King Gong.

Fogmen, you may rest your heads
Snugly in your comfy beds,
That's provided naught goes wrong
With His Majesty King Gong.

A. B.



Tapestry of G.N.R. express in the 'eighties. The destination board states "Kings Cross and Leeds." The signal is not of the standard G.N.R. somersault type introduced after the accident at Abbots Ripton in 1876

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Financial

Revenue for July, 1951, amounted to £1,115,432, less expenditure £985,411, leaving a surplus of £130,021, or £15,548 less than in the preceding month due to a disproportionate rise in expenditure.

Passenger, parcels and excess luggage revenue at £130,605, and Road Motor Services revenue at £34,264, were records.

Operating Records

Other records included general goods, 262,064 tons; coal and coke hauled, 195,022 tons; third class passengers carried, 12,608; train miles, 787,639; train engine hours, 49,355.

New Hunyani Bridge

The new Hunyani Bridge (costing about £60,000) and deviation (£150,000) was opened on October 29.

NEW ZEALAND

Fire at Rimutaka Tunnel

Fire has seriously damaged vital equipment at the eastern portal of the Rimutaka tunnel which is to link Wellington with the Wairapa. The loss of the equipment will seriously delay progress on the tunnel. The fire gutted the top floor of the nearly completed crushing, screening, and batching plant. Shortly before, the building and plant had been tested, but had not been handed over to the contractors. The contractors have recently installed additional equipment and were awaiting the new plant to enable them to speed up work on the eastern heading to keep pace with that on the western side.

The destroyed plant would have been most valuable to the contractors as in one series of operations it crushes and screens the metal, and weighs it and the cement into correct proportions required for the various mixtures. The mixture is then transferred to the pumping plant which forces the cement along pipelines to the tunnel face where it is poured behind a large steel frame. This allows much of the tunnel section to be concreted in one operation.

MEXICO

Southern Pacific Railroad

The Government has been considering for some time the possibility of incorporating the Southern Pacific Railroad of Mexico in the national system. It is stated that heavy expenditure would be involved to put the line in first-class condition.

Public support will be sought, especially in the States of Jalisco, Nayarit, and Sinaloa. Rehabilitation will begin as soon as Señor Agustin García López, Secretary of Communications & Public Works, working under instructions of the President, has drawn up plans for acquiring the line and worked out a scheme for reconstruction and operation.

Loan to National Railways

Through Nacional Financiera, the Government bank, the National Railways had received from the Export-Import Bank up to August 30 last a total of $38,900,000 for rehabilitation. This amount, made in four loans, has almost all been used, and the system now has at its disposal $1,375,000 (U.S. currency).

The system has amortized to the same date, $10,839,013·18, and still owes $28,060,986·82. Other credits, approved but not signed, totalling $79,500,000, will be granted to Mexico and of this total the National Railways will receive an additional $51,000,000.

CANADA

Course in Diesel Maintenance

An audio-visual course in diesel locomotive maintenance has been instituted by the Canadian National Railways at Turcot Yards. It is intended to qualify men for maintenance work in the company's expanding dieselisation programme and will be available through the winter to some 500 C.N.R. mechanics and electricians. At present, 69 road diesels and 31 shunters are being serviced at the terminal.

In the presentation of the lectures, the latest development in audio-visual education is used. It consists of a recording machine operating in conjunction with a projector under the control of an instructor. While the lecture is being played on the recorder, the instructor uses the projector to illustrate what is being said by transparencies of various parts of the locomotive. A course for diesel locomotive crews based on the same audio-visual technique was inaugurated by the C.N.R. earlier this year.

Freight Rates Equalisation

Equalisation of freight rates will take about five years according to expert advice tendered to the House of Commons special committee studying the Government's freight trade equalisation Bill.

Mr. L. J. Knowles, Traffic Adviser to the Royal Commission on Transportation and now Special Assistant to the President, Canadian National Railways, said it would take between one and two years to equalise the basic rate scale between regions. Another three years or so would be needed to adjust the thousands of individual rates. Mr. F. C. S. Evans, Vice-President & General Counsel, Canadian Pacific Railway, said the equalisation process had necessarily to be slow to avoid "upsetting the whole economy." "Drastic and quick adjustment of rates might throw some industries into bankruptcy."

The committee also heard from Mr. Knowles a suggestion that an equalisation plan could be drafted with the Maritimes excluded, as sought by the governments of the four eastern seaboard provinces. He thought that there could be one uniform rate scale from Levis, Quebec, to Prince Rupert, B.C. (Levis is the C.N.R. western end of the seaboard "select area" defined in the Maritimes (Provinces) Freight Rates Act of 1927.) The proposal is that the interior West would not be charged more than 1½ the rates on goods moving between the East and the West Coast under British Columbia transcontinental rates. Some of the rates to intermediate points now are twice as much as those to the coast.

Turbine Fuel Research

The National Research Council has began research to find an inexpensive fuel in conjunction with experiments on the construction of turbines for locomotives, as it would not be economical to power the gas-turbine locomotive either with kerosene or petrol which are used in jet aircraft. A large experimental combustion chamber is being built to test heavy fuels for gas turbines. Heavy petroleum will probably prove the most economical fuel for a gas turbine locomotive; for stationary units, the use of natural gas appears indicated.

IRELAND

G.N.R.(I.) Fares Increase

The G.N.R.(I.) has announced that a ten per cent. increase in workers' fares and season tickets will apply to its Northern Ireland services from January 1. The decision to increase these rates was taken to bring the charges into line with those of the U.T.A. The increases do not apply to other passenger fares or freight charges.

Greenore Hotel

The Dublin Government has authorised the G.N.R.(I.) to buy the hotel and golf course at Greenore and operate them as at present, pending consideration of the use to which the whole of the property may be put after the railway service on the Dundalk, Newry & Greenore line has been withdrawn at the end of the month.

The hotel, golf course, and railway were the property of British Railways, but for some time had been operated on their behalf by the G.N.R.(I.). British Railways decided this year to dispose of the property, and as the railway was considered an uneconomic

service the decision was also made to discontinue it.

The Government considered that the hotel should be maintained until the outcome of wider considerations following the acquisition of the G.N.R. The decision to authorise the company to purchase is in the nature of a holding operation. A final decision on the future of the property may be taken next year, when the new joint G.N.R.(I.) Board comes into being.

SWITZERLAND

Federal Railways Budget

The budget of the Federal Railways for 1952 envisages a working surplus of fr. 180,073,600, or fr. 25,241,286 more than that in 1950. There is to be a small increase, about 1½ per cent., in the working expenditure, and working receipts are expected to increase by about 5 per cent.

The working surplus for 1952 has been put at fr. 180,073,600, some 40 per cent. higher than that budgeted for 1951 (fr. 129,132,200). In the working expenditure budgeted for 1952, 92·1 per cent. account for the working proper (fr. 455,677,700) compared with 91·7 per cent. in the 1950 expenditure; 6 per cent. for the administrative services (fr. 29,572,400), against 6·1 per cent. in the 1950 accounts; and 1·9 per cent. for miscellaneous items (fr. 9,688,300), compared with 2·2 per cent .in the 1950 accounts. In the 92·1 per cent. the largest item, fr.290,359,100, covers the train services (fr. 285,727,728 in the 1950 accounts) and the second largest, 30·4 per cent. (fr. 150,321,000), for maintenance (fr. 145,201,205 in the 1950 accounts).

FRANCE

Rate and Fare Increases

The National Railways have asked the Government for permission to raise passenger and freight rates next year. They propose a 10·5 per cent. increase on freight rates and an increase of about one-third of a penny a mile for passengers. Even with these increases, it is stated, there will be a deficit of £100,000,000 in 1952.

WESTERN GERMANY

New Restaurant Car Menu

During the last few weeks the Deutsche Schlafwagen- und Speisewagen Gesellschaft carried out an interesting experiment in restaurant cars running between Frankfurt-on-Main and Brunswick, where previously there was only one *table d'hôte* midday or evening meal in the cars, priced at DM. 3·25, 4, or 4·25, according to the class of train; there is now the choice of four set meals at the following prices: DM. 1·50, 2, 3·25, and 4·50.

The particularly favourable reaction to this experiment by the public has encouraged the introduction of the extended choice of set meals in all restaurant and buffet-kitchen cars from December 1. The following *table d'hôte* meals are now available:—

Restaurant Cars in D Trains

Lunch at DM. 1·50, 2, 3·25 and 4·50
Dinner at DM. 2, 3·50, and 4·50

Restaurant Cars in FD Trains and Express Diesel Cars

Lunch at DM. 2·50, 3·75, and 4·75
Dinner at DM. 2·50, 3·75, and 4·75

Buffet-Kitchen Cars and Dining Portions of Double-Deck Trains

Lunch at DM. 1·50, 2, and 3·25
Dinner at DM. 2 and 3·50

The usual ample *à la carte* menu is maintained in all trains.

These experiments proved that, thanks to the years of experience of the staff, the increase in the work in the kitchen caused no delay in service of the meals. A choice of four *table d'hôte* meals in a restaurant car is something new. As when the company introduced third class sleeping cars in the early 1920s and modern single-berth second class cars in the summer of 1950, the undertaking has once again been the pioneer in introducing a valuable service to its patrons.

Publications Received

Oesterreichs Strassenbahnen in Wort und Bild (Austrian Tramways Described and Illustrated). Special number of *Eisenbahn.* Vienna: Ployer & Company, Aegidigasse 5. 128 pp. 11½ in. × 8¼ in. Illustrated. Price 25 Austrian shillings.—Although this publication, which is a companion to a special number on Austrian locomotives and railcars reviewed in our September 15, 1950, issue, is devoted mainly to the past and present rolling stock of Austrian urban tramways, it also covers electric light railways and the Vienna Stadtbahn. The great detail given in the text, and many illustrations, tables and maps make the work of particular value to the student of rail transport, whatever its form.

Nimonic Alloys and Gas Turbine Design.—A revised edition of the booklet "The Nimonic Series of Alloys: Their Application to Gas Turbine Design" has been published by the Mond Nickel Co. Ltd. This booklet was first issued in 1948. Service in gas turbines provides the most advanced case of high temperature operation at severe stresses, and one of the problems has been to provide materials of construction capable of carrying these stresses at a temperature high enough to guarantee useful turbine efficiency, for a sufficient length of time to make the engine practicable. Solution of the latter prob'em in which the Nimonic series of alloys has played an important part has been the result of close working between the designer and the metallurgist.

Fuel Economy Pays.—Every winter since the war, shortage of fuel for industry has been a constant anxiety, and there seems little prospect of coal being plentiful again for sometime, largely as a result of export demands. This useful handbook has therefore been issued by the Federation of British Industries at 2s. to serve as a guide to the saving of industrial fuel. There are three sections in all, covering, among other problems, common faults in boiler operation and the remedies which can be applied, including methods of eliminating heat losses due to faulty brickwork; instrumentation, including the application of combustion control apparatus, water and steam flow meters, and so on; and a section in which is discussed the thermal insulation of buildings and plant.

Locomotives Américaines. Paris, 8e., 1951: Les Editions du Ponant, 11, Rue Bernouilli. 9⅜ in. × 7⅛ in. 31 pp. Price fr. 200.—This addition to the "Images et Transports" series opens with illustrations of historic locomotives of the U.S.A. and Canada, many of them photographed during the recent Railroad Fair in Chicago. The pictorial record is supported by informative captions, one of which recalls how the classic "American" type 4-4-0 with outside cylinders was made familiar in Europe by the original illustrations for Jules Verne's "Around the World in Eighty Days." At least one British edition of the same book has a frontispiece showing one of these locomotives making its famous dash across the bridge at Medicine Bow, hauling a train of three cars which the author described as "a sort of long omnibus resting on bogie trucks, with four wheels at each end." Modern steam, diesel, and electric locomotives are depicted in the second half of the book, which forms an interesting pictorial review of practice on the other side of the Atlantic.

Calendars for 1952.—We acknowledge the receipt of calendars for 1952 from the following: Canadian Pacific Railway; Illinois Central Railroad; Pennsylvania Railroad, the Royal Netherlands Embassy Economic Department; Bristol Aeroplane Co. Ltd.; Brown Boveri & Co. Ltd.; Holman Bros. Limited; Pyrene Co. Ltd.; and Ruston & Hornsby Limited and Davey, Paxman & Co. Ltd.

Renold Chain Toggle Clutch.—Although designed primarily for chain drives, this clutch, as described in an illustrated folder issued by the Renold & Coventry Chain Co. Ltd., can also be used with other forms of power transmission. Inner and outer friction rings are actuated by chain toggles which ensure uniformity of contact throughout the friction surfaces. The clutch is totally enclosed, and the whole of the mechanism including the metal-to-metal friction surfaces, runs in oil. Easy adjustment is another feature of this clutch.

Planning the Western Uganda Extension

Some 247 miles of line intended to tap copper deposits were located in ten weeks

THE extension of the Uganda Railway to the western boundary of the Protectorate has exercised attention since the beginning of the century. In 1911 Major A. J. Stevenson carried out a survey of alternative routes to Lake Albert, one to Butiaba and one to the southern end of the lake. Neither project was carried through for financial reasons, but in 1914 the Governor of Uganda (Sir Frederick Jackson) and the General Manager of the Uganda Railway supported the construction of the railway link with the southern end of Lake Albert as a sound and essential development.

The 1914-18 war intervened, putting a stop to further progress, and it was not until 1920 that the Uganda Development Commission published a report urging the necessity for the construction of a railway from Kampala to Mityana, with its logical subsequent extension to Toro. This plan was abandoned in favour of the proposed Jinja to Kampala extension of the main line from the coast.

In 1929 Mr. H. F. Varyan submitted a report on a possible railway route to Western Uganda, and in the same year the Colonial Development Act encouraged further investigation of the possibilities. A detailed engineering survey was carried out in 1930 and 1931 by Mr. H. F. Birchall of the Kenya & Uganda Railways & Harbours, and an economic survey of the route completed at the same time.

For various reasons, connected mainly with the financial depression that followed, the project had yet again to be abandoned. Once more a world war intervened when interest might have re-awakened. With the continued increase in costs of materials and construction, the economic case for a railway extension in Western Uganda diminished almost in proportion, until in 1950 the question of copper resources in the Ruwenzori Mountains came increasingly to the fore. The Ruwenzori range begins north of Lake Edward and runs northwards for some forty miles; it forms part of the Uganda-Congo border. If confirmed, the estimated output tonnages from and the import freight to Kilembe Mine, west of Kasese, may provide the necessary economic case for the extension of the railway westwards. The coincidence of the world copper shortage may give added weight to the final decision.

In December, 1950, an engineering survey was urgently called for, and a Committee was set up to carry out a new economic survey. To allow decisions on the construction of the line to be made concurrently with decisions on the development of Kilembe Mine—both largely affecting each other—the report and estimates of the survey were required to be completed by the end of April, 1951. Mr. P. H. Hicks was appointed Resident Engineer.

The ruling gradients adopted for the railway are 1 in 66 against up traffic and 1 in 85 against down traffic, with a maximum curvature of 8 deg. The main characteristics of the country to be traversed are bush, forest, elephant grass and papyrus swamps. The trace follows flat swampy valleys for the first 150 miles, and then enters broken hilly country in the faulted region on the east side of the escarpment overlooking Lake George and the Ruwenzori. Here it was necessary to find a route descending 1,000 ft. down the steep slopes of the escarpment debouching on to a great swampy plain north of Lake George. The question of a long divergence of the line around the northern edge of the swamp, or a direct crossing of the plain, was a problem requiring investigation under great pressure of time. A direct route was successfully found through the swamp by cutting lines through 15-ft. papyrus growing in the morass, and drilling for hard ground.

With less than five months in which to prepare, carry out and report on 250 miles of railway, detailed planning was an essential preliminary before field parties were set to task. During December, 1950, it was necessary to find staff to form four field survey parties, and also arrange for two field parties on contract to carry out the final staking of the first 45 miles to Mityana, the construction of which had by then been authorised under the financial guarantee of the Uganda Government.

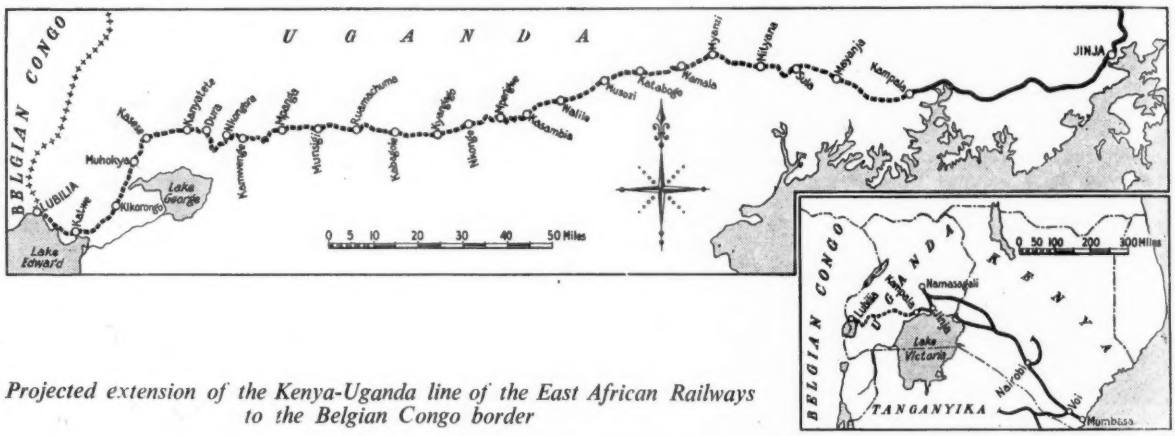
Aerial Reconnaissance

The general location of the route as far as the Congo border was ascertained by aerial reconnaissance and the use of aerial photographs taken in 1950 by the Colonial Survey Directorate for mapping Uganda. The controlling points along the route having been ascertained as far as possible from the air, it was next the task to complete on foot the preliminary reconnaissance work for the establishment of general lines of route to be surveyed.

While this reconnaissance was in progress, field equipment and staff for the survey were got together with difficulty. By the beginning of January, 1951, all staff, equipment, and the essential African porter corps began to be assembled. As much of the country to be traversed lies away from even the most meagre bush roads, porterage by head loads had to be arranged despite the strong feelings now held against this practice by the modern African in Uganda. Much is therefore due to the cheerful co-operation of the tribes from which volunteers were recruited for the task.

Field work was built up to full output by the end of January, maintained at high pressure during February and March, and all parties were then recalled from the field at the end of March.

In something like ten weeks a total of



Projected extension of the Kenya-Uganda line of the East African Railways to the Belgian Congo border

247 miles of location was completed by four field parties, a headquarters party, and a topographical unit consisting of a single veteran surveyor. The primitive field conditions and the preponderance of big game of all kinds gave a background interest to the technical achievements.

In the meanwhile, the final staking of the line westwards from Kampala was proceeding through dense forest, and by the end of April about half the distance to Mityana had been completed, with the final plans under preparation.

The control and correlating of such widespread field work such as this under pressure of time can be exercised only by hard and constant travel. There is little opportunity left for the one-time foot safari through the bush; decisions may now be required and taken in the time in which even in recent years such surveys could be organised and started. The prolonged stress of the old system in the field has altered. It is now concentrated in short periods of violent contact with bush conditions and hard travelling by mechanical means.

Office Organisation

When, at the end of March, 1951, all parties had returned from the field, a month remained to reduce the field work to terms of construction plans and costs. By organising the office work on rationalised methods, the plans, sections, statistics and earthwork and bridging quantities were produced by all the field staff working together in a steady flow calculated to reach completion before the end of April, 1951. The report and estimates were, meanwhile, written around the plans and figures as these were produced, using the complete mental picture of the project.

The final reproduction of the report and estimates was also necessarily in hand while the survey work was under process of statisical reduction. The procedure was only made possible by a background of experience of construction problems and costs in East Africa.

The report and estimates were submitted in due time, five months from start of work, the field staff dispersed once again to various spheres throughout East Africa, and by June, 1951, the direction of work was turned on the construction of the first section of railway to Mityana.

Proposed Station Buildings, Plymouth, Western Region

Provision of up-to-date facilities for passengers, and offices designed to facilitate inter-departmental work

THE reconstruction of Plymouth North Road Station as the main station of the town has been envisaged for many years. As long ago as 1936, work was commenced by the former Great Western Railway and considerable progress made, until the suspension of all such reconstruction at the outbreak of the war.

The replacement of the existing station buildings by a new block, which will provide up-to-date facilities for the public and staff, is the main work still outstanding, and will be commenced by the Western Region as soon as circumstances permit. The proposed new buildings, about which the Plymouth Corporation has been consulted, are of contemporary design and incorporate all the usual facilities for passengers on the ground and first floors, while the upper floors, including the eight-storey wing shown in the photograph of a model reproduced below, will accommodate the District Officers—whose administrative areas cover a large part of Devon and the whole of Cornwall—and their staffs.

Immediately inside the main station entrance is a large concourse which links the approach road with the main down platform and the subway to all other platforms. On the left of this concourse will be the enquiry and booking offices, while to the right will be the left-luggage office, public telephone kiosks, and telegraph office.

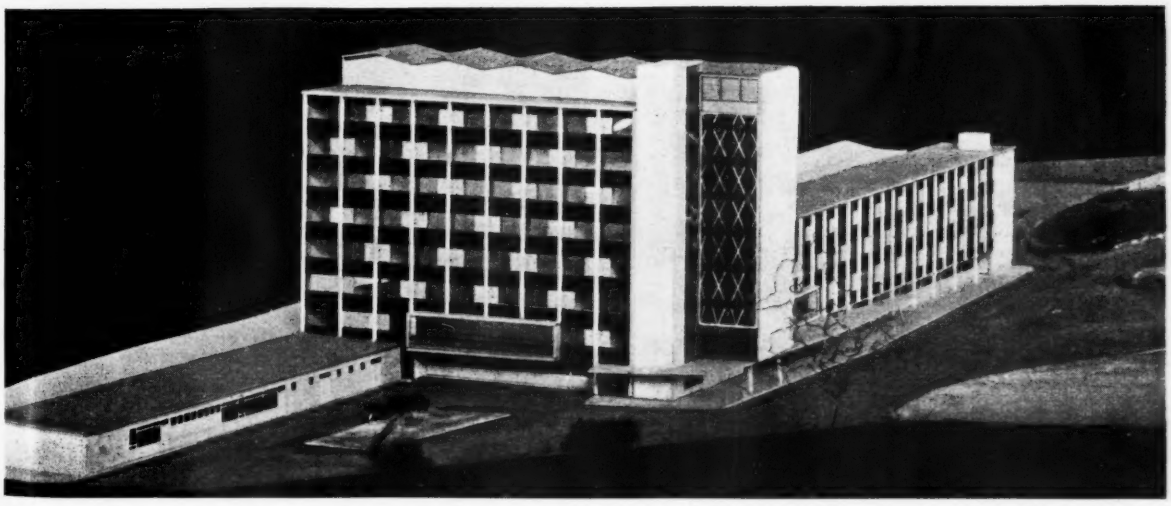
Accommodation

The ticket barrier, giving access to all platforms, will be immediately opposite the station entrance, and on the platform nearest to this barrier provision has been made for waiting and refreshment rooms, together with offices for the station staff. From the concourse a flight of stairs will lead to a cafeteria and bar on the first floor.

Parcels traffic will be dealt with in a separate hall, from which lifts will give access to the subway, with further lifts for the transference of this traffic and luggage to all platforms. The subway will be constructed with two parallel corridors, one for passengers and the other for parcels traffic and luggage, thus avoiding cross-circulation and interference with free movement.

Accommodation for the staff on the upper floors of the eight-storey block has been designed to facilitate inter-departmental work. Each floor will be served by lifts in addition to the stairways, and a conference room will be built in a central position over the concourse.

Dormitory accommodation will be included for train crews who are rostered to spend a night away from their home stations, and permanent offices will be provided for the Rail Transport Officers of H.M. Forces.



Design for buildings at Plymouth North Road Station, showing entrance to administration offices

Rolling Stock for Rhodesia Railways

Upper class corridor coaches of all-steel construction to provide for increased traffic

IN our March 23 issue we described and illustrated the third class passenger carriages being built for the Rhodesia Railways by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. In addition to the third class stock, orders were placed with the company for 15 first class and 23 second class carriages, and the order was subsequently increased to 32 first and 38 second class carriages respectively. The first class carriages are in an advanced stage of construction and the first order for 23 second class carriages has been completed.

The principal dimensions of the first and second class carriages are similar, and vary only in the tare weight. The dimensions are as follow:—

Length over vestibule body ends ...	63 ft. 5 in.
Width over side panels	9 ft. 3 in.
Height over roof	12 ft. 6 in.
Tare weight first class carriage ...	38 tons 8 cwt.
" " second " " ...	37 tons 10 cwt.
Gauge	3 ft. 6 in.

The bogies of the first and second class carriages are to S.A.R. standard design with a 6 ft. 6 in. wheelbase. The bogie is constructed of riveted rolled-steel sections. The outer and the inner headstock is fabricated from $\frac{1}{2}$-in. mild-steel plate, and the sole bars and cross-bars are of rolled steel channels 6 in. × 3$\frac{1}{2}$ in. Additional strength to the bogie frame is provided by diagonal angle bracings 4 in. × 3 in. × $\frac{5}{16}$ in., riveted to the outer and inner headstocks, secured to each by gusset plates $\frac{5}{16}$ in. thick.

The bogies are of the equalising beam type, with a nest of helical springs over the beams, and quadruple laminated springs under the bogie bolster. British Timken roller bearings are fitted and a common axleguard stretcher is provided which links each pair of axlebox guides on each side of the bogie. The underframes are of all-riveted construction consisting of rolled-steel channel sections and angles. The bodysides are riveted to the underframe, the whole forming a structure of sufficient strength to obviate the use of truss rods, a design which provides ample space for electrical equipment, brake gear, and so on. Trapdoors are provided over the draw-gear and bogie centre pins for inspection purposes. Provision for M.C.B. couplers is made on the first orders, Alliance No. 2 couplers being fitted on the extension orders.

Carriage Body Design

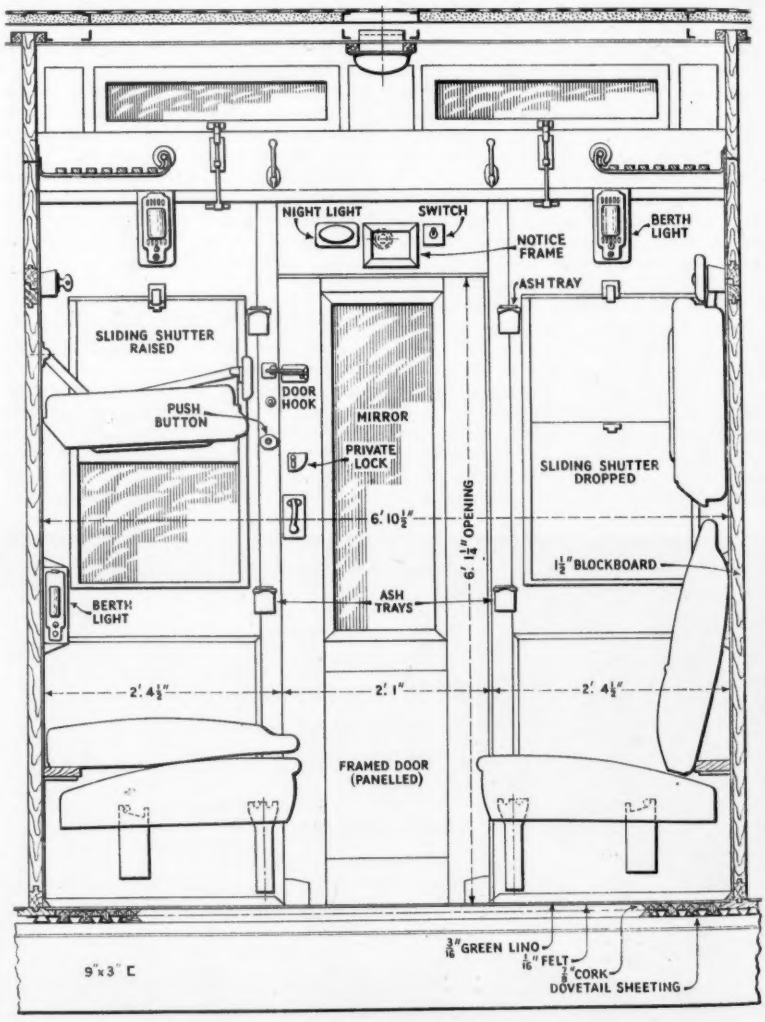
The construction of the bodies of the first and second class carriages are similar in many respects, but differ in seating arrangements. The bodies, which are of all-steel construction and integral design, are built of channel and angle sections and steel panels riveted together to give maximum strength. A smooth unbroken exterior is obtained by the absence of mouldings, and all panel joints and securing rivets are ground flush. The copper-bearing steel panels are $\frac{3}{32}$ in. thick, and turned under at the bottom to a width of $\frac{7}{8}$ in. to avoid the collection of water, and as a prevention against corrosion.

Insulation of the side panels is obtained by sprayed Limpet asbestos on the inside face of the panels $\frac{1}{2}$ in. thick below the waist rail and 1 in. thick from the waist rail to cantrail level. The corridor side is insulated with $\frac{1}{2}$-in. thick Insulwood, secured to the inside face on $\frac{1}{8}$-in. thick millboard, the outside of which is painted a pleasing shade of green, extending to waist rail level. Mahogany panels backed by $\frac{1}{2}$-in. thick Insulwood are fitted above the waist rail.

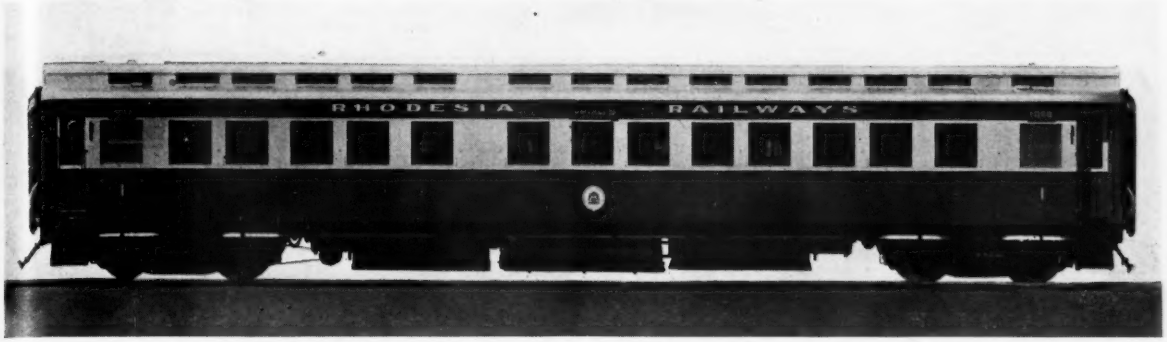
The floor is of dovetailed, galvanised-steel sheeting to which is cemented a layer of slab cork $\frac{7}{8}$ in. thick. This in turn is covered by a layer of felt $\frac{1}{16}$ in. thick on to which $\frac{3}{16}$-in. thick linoleum is laid. The roof structure is of the all-riveted clerestory type, providing ventilation for the compartment through hinged lights with gauze covered frames. The roof is insulated by means of sprayed Limpet asbestos 1 in. thick. The roof sheets are $\frac{1}{16}$ in. thick and finished in aluminium paint.

Accommodation

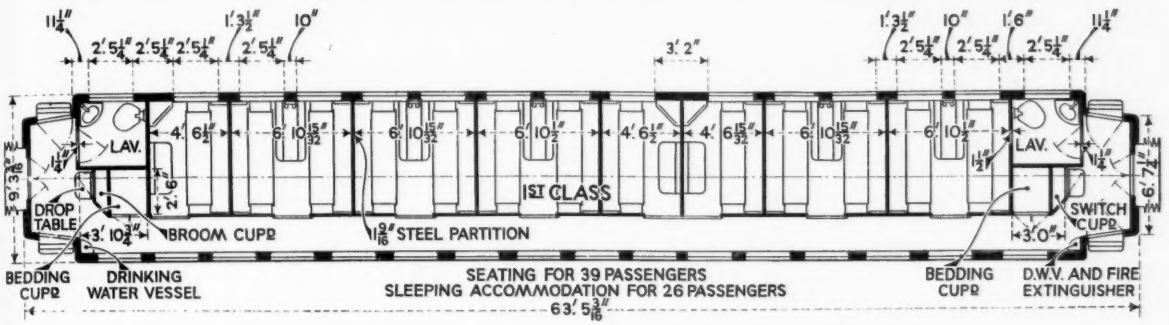
The carriages, arranged with enclosed vestibules and telescopic gangways, allow passage to all carriages when coupled together. A straight through corridor approximately 2 ft. wide connects the vestibules; access is by fixed steps at each end. Accommodation in the first class carriages provides seating for 39 persons and sleeping for 26 and is arranged in five full, and three coupé, compartments. Hinged upper



Arrangement of berths in the first class compartments



First class carriages for the Rhodesia Railways. The second class coaches are similar in exterior appearance

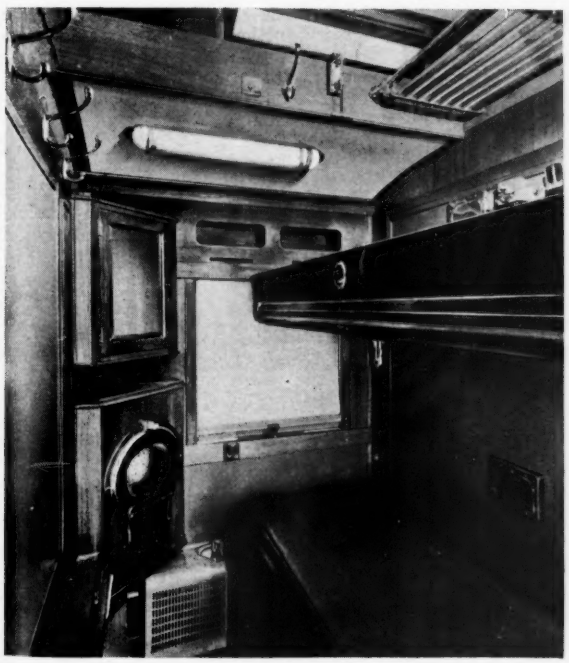


Interior arrangement and principal dimensions of the first class stock

berths are provided, two in each full compartment and one each in the coupé compartments. Passenger accommodation in the second class carriages comprises seating for 52 passengers and sleeping for 39; the sleeping accommodation is obtained by the provision of four hinged top and intermediate berths in each full compartment and two in each of the coupé compartments.

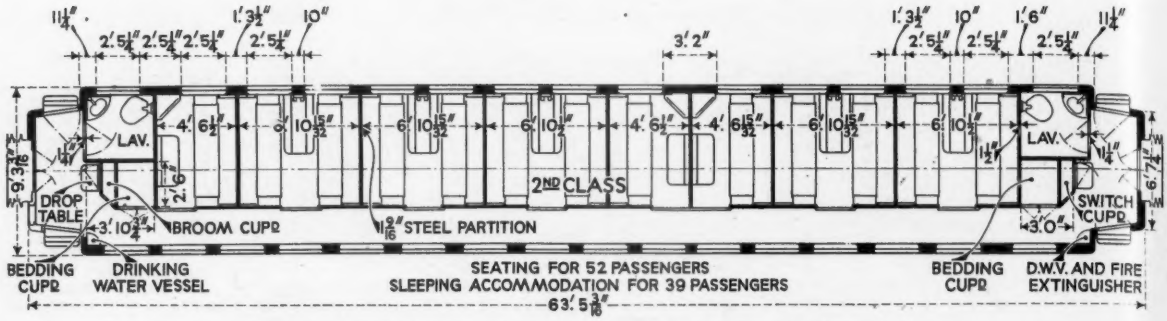
The partitions are covered in green Rexine, shade 980A, laid on $\frac{1}{8}$-in. felt. Recesses in the compartments are provided for light articles. Panelling used in the interior of the stock is composed mainly of plywood with African mahogany veneers finished in colourless french polish. Dressing mirrors are fitted in the doors on the compartment side, and the ceilings are of $\frac{1}{4}$-in. thick Agasote, painted white enamel. Louvre frames faced with mosquito gauze are mounted in the body window openings.

Both the windows and louvres drop



Interior of first class coupé showing berth arrangement

Interior of second class compartment



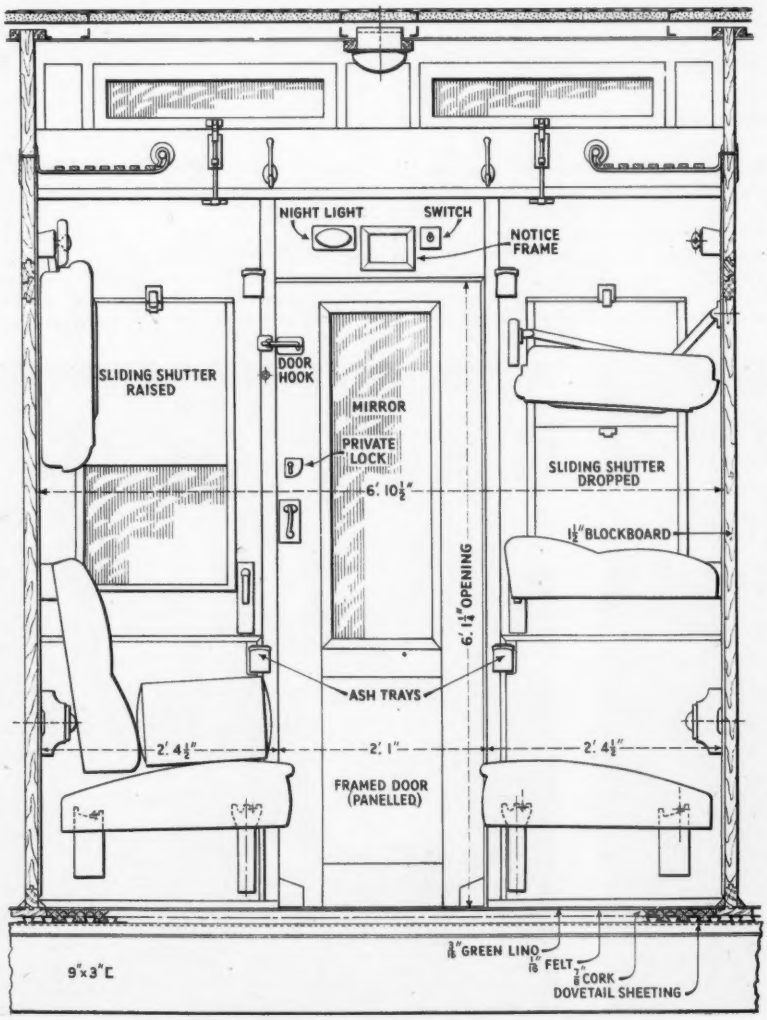
Interior arrangement and principal dimensions of second class coach

into special window pockets which divert all storm water clear of the structure. Rawlings, Sturdy Major, full-drop balanced windows are fitted, as well as spring blinds. Provision for light luggage is made by fitting racks in the upper roof consisting of timber slats and chromium-plated brackets secured to the partitions. Metallic fittings generally are chromium plated. Widney Pivota type ashtrays supplied by Hallam, Sleigh & Cheston Limited are fitted in all compartments. Polished folding tables are provided.

Lavatories are arranged at each end of the carriage and are lined in plastic. The lavatory equipment includes a commode, corner washbasin, mirror, brush and comb rack, and so on, and the fittings are chromium plated. Monarch ventilators are fitted in the roof of the lavatories. A water supply of 480 gal. is provided by overhead and underframe tanks, the roof tanks being filled from the underframe tanks by semi-rotary pumps. A removable cover is arranged above the roof tanks to facilitate inspection. Drinking water vessels are provided at each end of the corridor and bedding cupboards are also provided at the corridor entrance.

All carriages are equipped with Stone's system of electric lighting and provision is made for through electric couplings. Fluorescent lighting at 110 V. d.c. is provided for interior illumination. Lights for the corridor, vestibules, and lavatories are controlled from the main switch panel. Provision for housing the switch panel has been made adjoining the lavatory at each end of the carriage. All carriages are equipped with vacuum braking and a hand brake is also fitted. Steam heating is not generally fitted on Rhodesian Railways coaches, but, because some of the new stock is through-working on the S.A.R., some is steam heated.

The finish of the exterior is carried out in Syntholux enamel. The lower panels below the waist rail and the upper panelling above the windows are painted in imperial brown, with the panels between in light stone colour. Inspection is carried out by the Consulting Engineers, Messrs. Freeman Fox & Partners.



Arrangement of berths in second class compartment

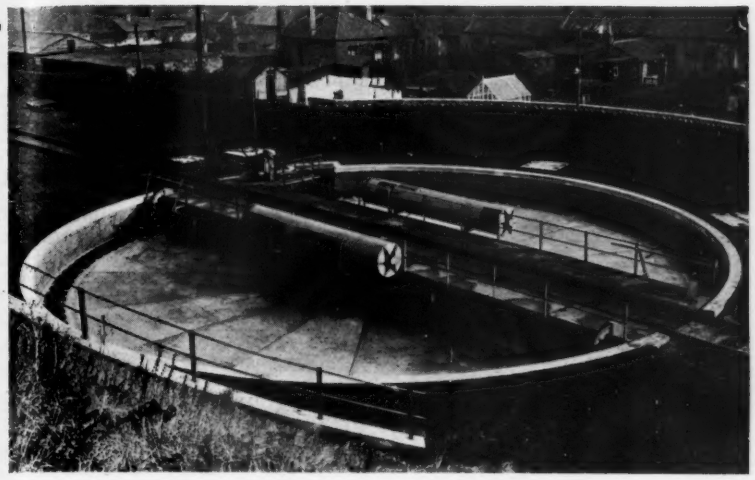
Principal Contractors

The following is a list of the principal contractors who supplied materials for the new stock:—

Wheels and axles ...	Taylor Bros. & Co. Ltd.
Axleboxes	British Timken Limited
Springs	English Steel Corporation Limited
I.R. springs	Geo. Spencer, Moulton & Co. Ltd.
Vacuum brake equipment	Vacuum Brake Co. Ltd
Castings	Robert Hyde & Son Ltd.
Lighting	J. Stone & Co. (Deptford) Ltd.
Glass	Pilkington Bros. Ltd.
Blinds and diaphragms...	Laycock Engineering Co. Ltd.
Asbestos, and cork flooring	J. W. Roberts Limited
Rexine	Imperial Chemical Industries Limited
Hide	Conolly Bros. (Curriers) Ltd.
Washbasins and lavatories	J. Levick Limited and James Beresford & Sons Ltd.
Berth frames and springs	Vi-Spring Products Limited
Balanced windows ...	Rawlings Manufacturing Co. Ltd.
Plywood	Edmonton Panel Co. Ltd., Flexo Plywood Industries Limited, Saro Laminated Wood Products Limited
Millboard	G. D. Peters & Co. Ltd.
Syntholux enamel ...	Docker Bros.

Modern Plant at a Scottish Motive Power Depot

Coaling and ash handling equipment at Dunfermline to meet demands arising from coalfield developments



New 70-ft. turntable equipped with vacuum tractor engine

WORK completed recently at Dunfermline Motive Power Depot, Scottish Region, to which brief reference was made in our issue of May 18, includes the installation of an electrically powered ash elevator, the replacement of an obsolete type of manual locomotive coaling stage by the latest type of electrically operated plant, the provision of an articulated tractor turntable, general improvements to electric lighting in the depot, and power drive for machine tools. These will meet the needs arising as a result of development of the Fife and Clackmannan coalfields.

The locomotive coaling plant, which is illustrated below, is of the skip hoist type and has a capacity of 200 tons. There are two bunkers, one holding 100 tons of coal suitable for local passenger and express freight trains, and the other supplying coal for shunting and trip engines. The plant is of reinforced concrete construction, the coal being first tipped from the wagon into a steel-lined tippler pit, and raised from there by means of a skip hoist of 25 cwt. capacity to the bunkers. As a precaution against abrasion the bunkers are lined with sal-ferricite.

Tippler Mechanism

Coal is fed from the bunkers by gravity to the electrically operated jigger feeders, one for each bunker, which load the tenders of locomotives standing under the plant. The tippler mechanism can handle wagons up to 20-tons capacity.

The new locomotive ash handling installation consists of an ash pit 210 ft. long and the ash plant. Ashes from the locomotives, which stand on the pit, are discharged into either steel tubs running in or alongside the pit, depending on the type of locomotive firebox to be handled.

The ashes are dumped from the tubs into a chute at the ash plant, where they fall into an electrically operated skip, which then elevates and tips them into the bunker of the plant. The bunker straddles a siding where stand the

(Continued on page 661)

Automatic coaling plant at Dunfermline

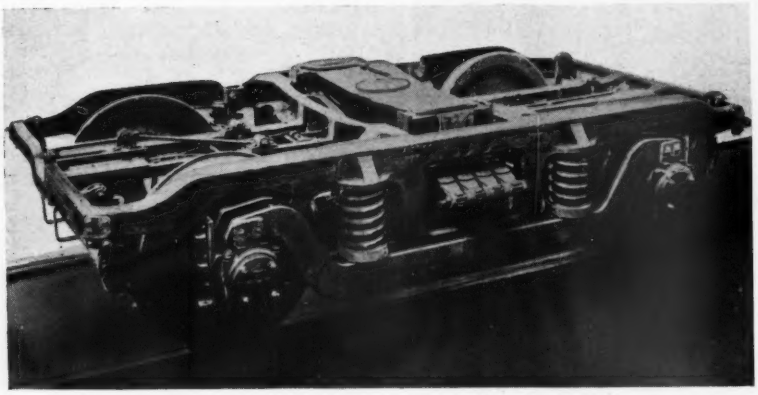
Locomotive ash handling equipment

Improving the Suspension and Stability of Running of Bogies

Recent practice on the French National Railways

By M. Lejeune

Engineer, Rolling Stock Design Section, S.N.C.F.



Pennsylvania-type bogie in general use on S.N.C.F. main-line coaches

FOR many years the French railways have been applying the well-known Pennsylvania type bogie to their express coaching stock. Its leading characteristics are:—

(a) the use of equalising beams;

(b) a two-stage suspension, one stage incorporating large spiral springs, the other using leaf springs of the double plate elliptical type;

(c) a swing bolster, hung from the bogie frame and having a small lateral displacement;

(d) a centre bearing piece resting on the swing bolster, bringing the entire weight of the body of the vehicle to bear on the bogie through the one point.

The running qualities of these bogies and the behaviour of the suspension itself have on the whole proved sufficiently satisfactory, but it was found that the stability of the coaches and the degree of comfort afforded to passengers were not perfectly constant. Certain vehicles were apt to hunt appreciably at high speeds while the efficiency of the suspension varied to a noticeable extent between one coach and another.

Tests Undertaken

As a result of trials and experiments the French National Railways became convinced that the hunting movements could be reduced by limiting to 2 or 3 mm. ($\frac{1}{16}$ to $\frac{1}{8}$ in.) measured parallel to the track, the play between the axle boxes and the horn plates, and could even be eliminated in combining this with the provision of side-bearing plates or surfaces on the swing bolster, to take up a proportion of the load. It is easy to see why the latter measure should prove beneficial as transferring a part or all of the load to an appreciable distance from the theoretical centre of rotation results in restraining the hunting of the bogie itself, which is, as experience has shown, the source of similar movements felt in the vehicle. For this reason the new coaches have been equipped with an improved Pennsylvania bogie, having reduced play (about 1 mm. ($\frac{1}{16}$ in.) in new stock measured either parallel or at right angles to the track) between axleboxes and horn plates and having elastic side-bearing plates on each side of the swing bolster frame, designed to take between them nearly 50 per cent. of the total load on the bogie. The coaches fitted with these new bogies have an excellent degree of stability in running, up to speeds of 100 m.p.h. and over.

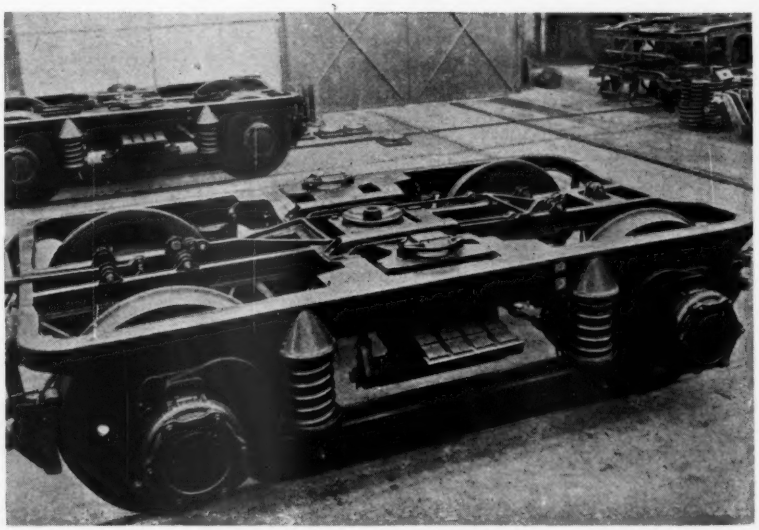
Having achieved this, the next step was to attack the problem of the suspension properly so-called. The conclusion was soon reached that the leaf spring used in the Pennsylvania bogie, of double elliptical form, was restricted too much in its action by friction between the individual plates, and that this was, moreover, always varying, according to whether the plates were lubricated or dry or even had become rusted.

Double elliptical springs of this type are slow in action, and have the quality, certainly not to be underestimated, of being able to counteract any sustained large amplitude movements arising in the first stage of the suspension, formed of coil springs not subject to friction.

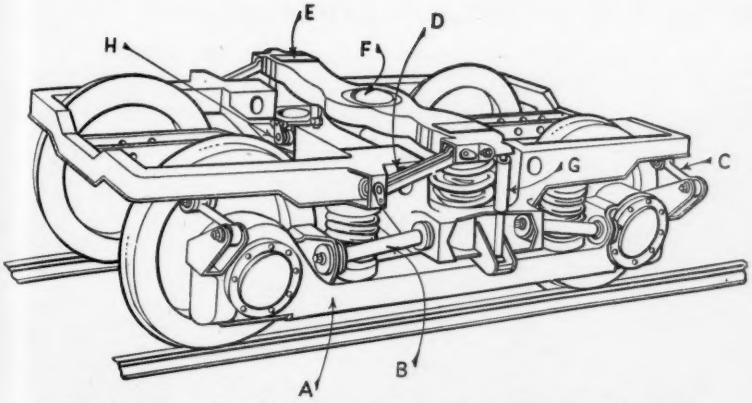
In these conditions it seemed attractive to do away with the leaf springs and replace them by something flexible, able to damp out shock gradually. This led to the designing of a bogie in which the second stage of the suspension was formed of a set of spiral springs and hydraulic shock-absorbers. Two such bogies, designated as type Y20, were put into service, and are seen in Fig. 1.

Successful Results

The results hoped for were attained; and the design enabled the total vertical accelerative movements, measured inside the vehicle, to be reduced by some 50 per cent. and the shocks caused by passing over the rail joints to be noticeably lessened. These bogies have a control device or system composed of longitudinal and lateral stay-bars, as seen on bogies recently constructed for the Chicago, Milwaukee, St. Paul & Pacific Railroad, which dispenses with horn plates on the axle boxes, or guides at the ends of the swing bolsters. In addition the whole weight is borne by side bearing surfaces, provided, as are



Improved Pennsylvania bogie used in new S.N.C.F. stock, having reduced play between axleboxes and horn plates



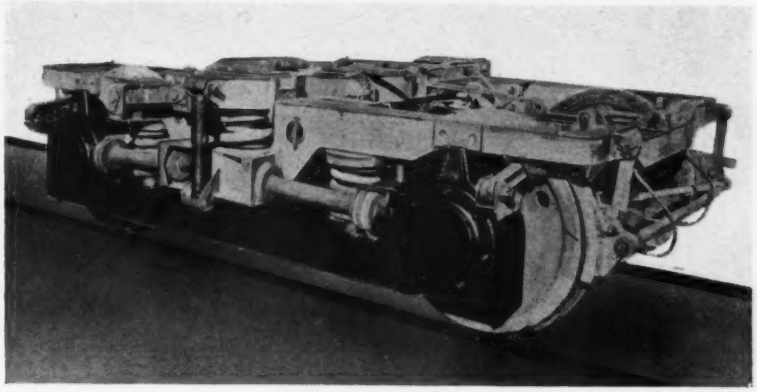
A. Equalising beam. B. Longitudinal stay—bars between bogie frame and equalising beams. C. Lateral stay-bars between the same. D. Longitudinal stay-bars between swing bolster and bogie frame. E. Side bearing plates. F. Pivot bearing with rubber surround. G. Vertical telescopic hydraulic shock-absorbers. H. Rotary type hydraulic shock-absorbers for steadying lateral displacement of the swing bolster

Fig. 1—Diagram of type Y20 bogie

the corresponding ones on the vehicle body, with bearing plates in manganese steel.

These two bogies of improved design have been in service for the last two years and have run to date about 300,000 km. (186,412 miles) without serious incident to the shock absorbers or special wear on the wheel tyres. Trials with this type are therefore to be extended to several more coaches as they come to be ordered in the ordinary course.

These experiments have emphasised, from the point of view of the comfortable riding of the vehicles, the importance of the absence of all irregularities or flats on the wheels. Such defects, when they respectively exceed 0·5 mm. ($\frac{1}{64}$ in.) or 100 gm. ($3\frac{1}{2}$ oz.) measured at the wheel tread, can give rise at high speeds to noticeable vibrations in the body of a vehicle, as the result of resonance between the revolutions per sec. and the natural periodicity of the body itself, resting like a bridge on the two supports formed by the bogies.



Experimental bogie, type Y20, designed by the S.N.C.F., incorporating hydraulic shock absorbers

LIGHTING OF ROAD VEHICLES. — The Ministry of Transport has issued a new memorandum on the Lighting of Road Vehicles (RVL Memorandum—August, 1951) which replaces the previous memorandum, No. 276 (Roads), published in February, 1937. This sets out briefly, and in convenient form, the provisions of the Acts and Regulations now in force relating to the lighting of road vehicles, except trams and trolley buses, including certain amendments. The information is of interest to all owners and users of motor vehicles and particularly to operators of goods and passenger carrying vehicles. Copies may be obtained from H.M. Stationery Office, price 3d.

Modern Plant at a Scottish Motive Power Depot

(*Concluded from page* 659)

wagons into which the ashes are finally loaded by gravity. The ash plant, like the new coaling plant, is constructed in reinforced concrete and the bunker has a capacity of 25 tons.

A new 70-ft. locomotive turntable equipped with a vacuum tractor engine also has been built. Use is made of the vacuum created on the locomotive, and the train pipe is coupled by flexible piping to the vacuum tractor engine to operate the table. Literally the locomotive, if vacuum fitted, turns itself. The turntable can also be manually operated.

Running sand and soil difficulties were encountered when excavating the foundations of the mechanical ash handling plant and these considerably delayed the progress of construction. With regard to the turntable, a public footpath and a large culvert drain required to be diverted before commencement of the work, and it was also necessary to pile the foundations.

The contractors for the coaling and ash disposal plants were Henry Lees & Co. Ltd., Motherwell, and for the turntable, ashpit, retaining walls, and so on, the firm of Ivan Tait, Edinburgh.

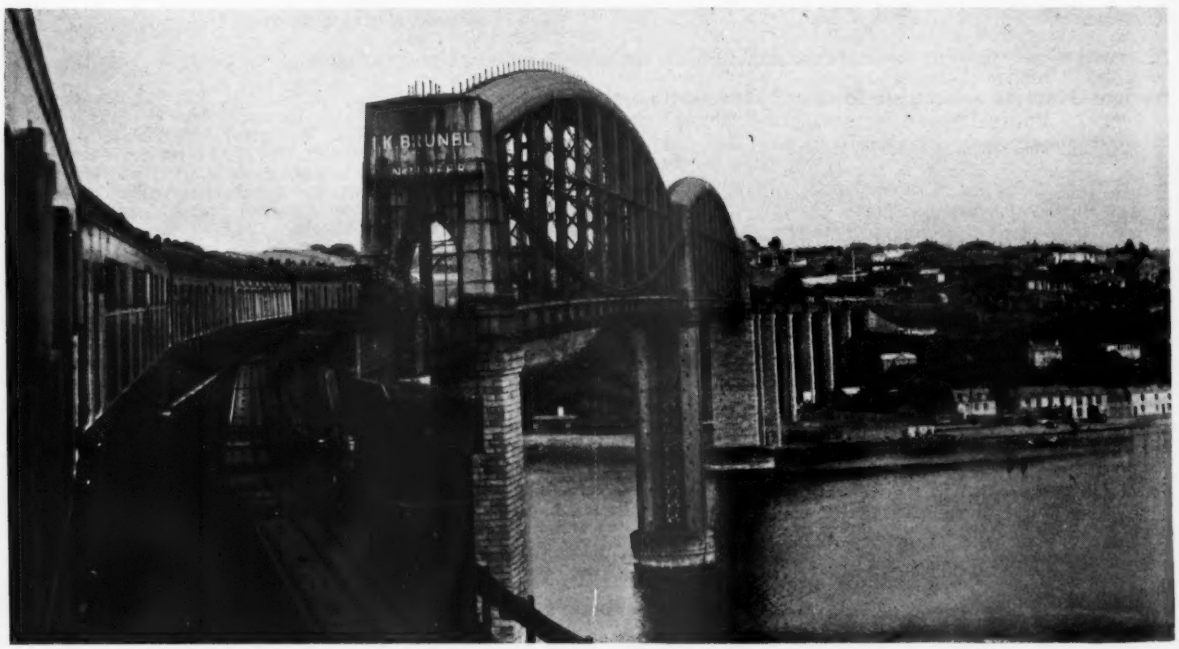
VICKERS-ARMSTRONGS AND METROPOLITAN-CAMMELL AFRICAN REPRESENTATION.—Vickers-Armstrongs Limited and the Metropolitan-Cammell Carriage & Wagon Co. Ltd. are reorganising their representation in South Africa as from January 1. Both companies are now represented by Vickers & Metropolitan Carriage (South Africa) Limited which, as from January 1, will change its name to Vickers-Armstrongs South Africa (Pty.) Limited, and a new company, the Metropolitan-Cammell Carriage & Wagon Co., Africa (Pty.) Ltd., will be formed. Vickers-Armstrongs South Africa (Pty.) Limited will sell the products of Vickers-Armstrongs Limited in the Union of South Africa and the Rhodesias, and will also represent Robert Boby Limited, Palmers Hebburn Co. Ltd., G. J. Worssam & Son Ltd., and, for some of its products, Ioco Limited. All are wholly owned subsidiaries of Vickers Limited. The company will also represent the British Clearing Machine Co. Ltd., an associate of Vickers Limited. The directors will be Mr. D. W. Stanley, Chairman & Managing Director; Mr. B. L. Blaine; Mr. W. H. Butler; Mr. J. A. Killick; and Mr. A. H. Hird, resident in England. The Metropolitan-Cammell Carriage & Wagon Co., Africa (Pty.) Ltd. will take over the representation of the interests of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., and will also represent Gresham & Craven Limited, Laycock Engineering Co. Ltd., George Spencer Moulton & Co. Ltd., Vacuum Brake Co. Ltd., and Maley & Taunton Limited. The directors will be Mr. D. W. Stanley, Chairman; Sir Archibald J. Boyd, resident in England; Mr. F. O. G. Long, Managing Director, and Mr. W. A. J. Day.

ENGINEERING CENTRE LIBRARY EXTENSIONS. —The Engineering Centre, 351, Sauchiehall Street, Glasgow, has opened a catalogue library which contains the literature of more than 3,000 firms, and also a complete set of British Standards. Frequent additions by the firms concerned and constant supervision by the staff ensure that the library contains the most recent publications. The facilities offered by this source of information are already being put to good use by overseas visitors and others.

First British-Built Gas-Turbine Locomotive

Gas-turbine locomotive No. 18100, *built by the Metropolitan-Vickers Electrical Co. Ltd. for the Western Region of British Railways, now undergoing initial trials*

Western Region Express Crossing Saltash Bridge



The 1.55 *p.m. from Penzance, hauled by* 4-6-0 *locomotive No.* 6817, "*Gwenddwr Grange*," *crossing Saltash Bridge, which carries the main line over the River Tamar*

RAILWAY NEWS SECTION

PERSONAL

PRESENTATIONS TO MR. H. H. HALLIDAY

Mr. H. H. Halliday, who retired as Regional Staff Officer, Eastern Region, on December 8, was the recipient of a presentation from Mr. C. S. McLeod, Assistant Regional Staff Officer, on behalf of members of his staff, on December 6. Ninety of Mr. Halliday's present and former staff assembled at Liverpool Street on the occasion of the presentation, which at Mr. Halliday's request, was an original painting exhibited at the recent Eastern Region Art Exhibition. In addition to the picture, Mr. Halliday received a cabinet of cigars. At a similar function at Liverpool Street on December 7, Mr. C. K. Bird, Chief Regional Officer, Eastern Region, on behalf of his fellow Officers, presented Mr. Halliday with a pair of binoculars.

Mr. C. C. Inglis

Appointed Chief Research Officer, British Transport Commission

Photo] [Lafayette

The late Mr. A. E. Hamp

General Manager, Tanganyika Government Railways, 1943-46

Mr. A. E. Shave

Appointed Supplies Officer, London Transport Executive

Mr. C. C. Inglis, A.M.I.E.E., at present a Deputy Chief Scientific Officer in the Ministry of Supply, who, as recorded in our November 2 issue, has been appointed Chief Research Officer, British Transport Commission, as from January 1, 1952, is 52 years of age. Mr. Inglis was trained at Faraday House, London, obtaining a Diploma with Distinction in Physics, Mathematics, Heat Engineering and Electrotechnology, and was a Silver Medallist. He served his apprenticeship first with Hick, Hargreaves & Co. Ltd., Bolton, and later with the London & South Western Railway. On completion of his training he was appointed Assistant Engineer in the Traction Department of Messrs. Merz & McLellan and remained with the firm until 1932, when he became Assistant Engineer to the North Eastern Electric Supply Company. In 1937 he returned to Messrs. Merz & McLellan as Chief Engineer of the Traction Department, and for the war period his services were utilised by the Ministry of Supply in connection with design and development in the Department of Tank Design. In 1945 he was appointed to the Ministry of Supply at Chobham as Superintendent of Research Fighting Vehicle Division (Tracked & Wheeled Vehicles), and since 1948 he has been the Deputy Chief Engineer in the Ministry's Armament Design Establishment. Mr. Inglis has been the representative of the Ministry on various Scientific Advisory Council Committees. Mr. Inglis has acted as Chairman of various boards and committees and he is a Ministry of Supply Assessor on the board of the Mechanical Engineering Research Organisation.

Mr. A. E. Hamp, C.M.G., C.B.E., M.I.C.E., General Manager, Tanganyika Government Railways, 1943-46, whose death, at the age of 65, we recorded briefly last week, received his technical education at the City & Guilds Central Technical College, and subsequently became an articled pupil of the late Mr. Baldwin Latham, Consulting Engineer, of Westminster. After two years as assistant in Mr. Latham's office on Parliamentary work and surveys, and as resident engineer for works under his control, Mr. Hamp joined the temporary construction staff of the Public Works Department in Kenya in 1912. He transferred eighteen months later to the staff of the Uganda Railway. During his service with the Kenya & Uganda Railways & Harbours he was employed as an Assistant Engineer & District Engineer, Maintenance; Assistant Engineer & Engineer in Charge of Surveys; and Assistant Engineer & Resident Engineer on Construction. After acting as Assistant Chief Engineer for about two years, he was confirmed in that appointment in July, 1928, and in January, 1930, was appointed Chief Engineer with effect from August, 1928, that is to say, from the date of the death of Sir Christian Felling, at which time Sir Godfrey Rhodes, Chief Engineer, became General Manager. Mr. Hamp was appointed General Manager, Tanganyika Government Railways, in 1943 and he retired in 1946. During the 1914-18 war he served with the Uganda Railway when it was operated as a military transport unit.

Mr. Oswald A. Trudeau, Assistant General Passenger Traffic Manager, Canadian National Railways, has been appointed General Passenger Traffic Manager.

We regret to record the death, at the age of 74, of Mr. H. E. Goodship, Chief Accountant, Kenya & Uganda Railways & Harbours, 1927-31, and previously Chief Accountant, Uganda Railway.

Mr. A. E. Shave, A.M.I.C.E., A.M.I.Mech.E., A.M.I.E.E., F.S.S., Senior Assistant to Purchasing Officer, London Transport Executive, who, as recorded in our December 7 issue, has been appointed an Officer of the Executive with the title of Supplies Officer, is 41. He was educated at St. Paul's School and studied civil, mechanical and electrical engineering at Battersea Polytechnic. He joined the Underground Group of companies in 1927 as an articled pupil to the Chief Engineer and became Assistant to the Resident Engineer for the Piccadilly Line extensions. From 1934 to 1937 he was in charge of the Permanent Way Shops, Lillie Bridge, and in 1938 was appointed Assistant Section Engineer at Chiswick Works. He relinquished this post in 1941 to become Chief Inspector at the Leavesden aerodrome of the London Aircraft Production Group. In 1945 Mr. Shave joined the Planning Section of the Office of the Works Manager (Buses & Coaches), was appointed Technical Adviser to the Chief Commercial Officer in 1947 and in 1949 became a Senior Assistant to the Purchasing Officer.

Mr. L. J. Hamblin, District Operating Superintendent, Worcester, Western Region, has been appointed District Operating Superintendent, Chester, Western Region.

Mr. H. F. Hutchison, Publicity Officer, London Transport Executive, has been elected Chairman of the Design & Industries' Association. He has been a member of the National Council for four years.

Mr. R. W. Bailey

Appointed Assistant Regional Staff Officer, London Midland Region

Mr. F. E. Phasey

Appointed Assistant to Commercial Superintendent (Passenger & Parcels), Western Region

Mr. E. H. Huckle

Appointed Assistant (Salaried Staff), Regional Staff Office, Eastern Region

Mr. R. W. Bailey, T.D., M.Eng., A.M.I.C.E., A.M.I.I.A., Executive Officer (Technical & Maintenance Staff), Railway Executive, who, as recorded in our November 30 issue, has been appointed Assistant Regional Staff Officer, London Midland Region, joined the Cheshire Lines Railway is a pupil in 1922. He was appointed Works Manager, Warrington, in 1932 and Assistant District Engineer, Manchester District, L.M.S.R., in 1937. Between 1939-45 he served in the Royal Signals as Chief Signal Officer, with the rank of Colonel, in various areas of the Middle East. On his return from war service, he was appointed District Engineer, Perth District, L.M.S.R., and in 1946 became Staff Assistant to the Chief Engineer, L.M.S.R., at Watford. At nationalisation he was appointed Technical, Workshop & Maintenance Staff Assistant to the Chief Officer (Staff & Establishment), Railway Executive Headquarters, and in 1949 became Executive Officer (Technical & Maintenance Staff).

Railway Executive Appointments

The Railway Executive announces the following appointments:—

Mr. C. A. Gammon, Technical Assistant, Carriage & Wagon Engineering Department. Derby, to be Assistant (Wagon Design), Carriage & Wagon Engineering Department, Railway Executive headquarters, London.

Mr. S. E. Newman, Chief of Divisional Trains Office, Derby, to be Assistant (Train Planning), Operating Department, Railway Executive headquarters, London.

The following appointments in the Electrical Engineering New Works & Development Organisation, Railway Executive headquarters, London, are also announced:—

Mr. W. J. Webb, Senior Technical Assistant (Power Supply), London Bridge, to be Assistant for Sub-stations.

Dr. H. I. Andrews, Senior Assistant (Engineering). Railway Executive Research Department, Derby, to be General Assistant.

Mr. E. Claxton. Assistant Electrification Engineer, Electrical Engineering, New Works & Development Section, Kings Cross, to be Electrification Engineer.

Mr. F. E. Phasey, Assistant (Passenger & Parcels), Commercial Superintendent's Office, Western Region, who, as recorded in our November 30 issue, has been appointed Assistant to Commercial Superintendent (Passenger & Parcels), joined the service of the Great Western Railway at Paddington in 1914 and after serving with the Rifle Brigade in the first world war, was attached to the Rates & Fares Sections of the Office of the Superintendent of the Line at Paddington. In 1945, Mr. Phasey was appointed Assistant Head of the Passenger Rates Section at Paddington and became a member of the Passenger Train Rates & Fares Conference. Three years later he became head of the Passenger Rates Section. He took up the duties of Chief Clerk (Passenger & Parcels, including Development) in the Commercial Superintendent's Office in May, 1950, which post was, in February of this year, redesignated Assistant (Passenger & Parcels) Commercial Superintendent's Office. Since 1949, Mr. Phasey has been Chairman of the Advisory Panel of Passenger Commercial Assistants, in connection with the London Passenger Charges Scheme, 1950, and the draft British Transport Commission (Passenger) Charges Scheme, 1951.

Mr. C. B. Nixon, Chairman, Leyland Motors, Limited, left this country in the *Brazil Star* on December 8 for Buenos Aires, where he will be met by Mr. D. G. Stokes, General Sales Manager of the company, who started a 25,000-mile trip by air on December 4 to Latin America and the U.S.A. Mr. Nixon will spend most of his time in Argentina and Uruguay, though he will later travel to Brazil and sail home from Rio de Janeiro next February. After visiting various countries, Mr. Stokes will return to Great Britain next March.

Mr. E. H. Huckle, Senior Assistant (General), Chief Regional Office, Eastern Region, who, as recorded in our November 9 issue, has been appointed Assistant (Salaried Staff), Regional Staff Office, Eastern Region, entered the service of the Great Northern Railway in the Accountant's Department at Kings Cross in 1906. He served in the first world war, in the Royal Engineers, between 1916-19 and on the amalgamation in 1923 was transferred to the Divisional General Manager's Office, Southern Area, L.N.E.R., Liverpool Street, where he remained until 1930, and became Head of the Salaried Staff Section. Mr. Huckle was attached to the Wages Staff Section of the Chief General Manager's Office, L.N.E.R., from 1930 to 1939, when he returned to the Divisional General Manager's Office as Clerk-in-Charge of the Salaried Staff Section. On nationalisation in 1948, Mr. Huckle became Senior Assistant (General), Chief Regional Office, Eastern Region, Liverpool Street.

We regret to record the death on November 29, at the age of 72, of Mr. H. B. Webster, who retired in 1944 as Assistant (Rates & Charges) to the Chief Commercial Manager, L.M.S.R. Mr. Webster was widely known in transport circles for his comprehensive knowledge of rates and his service on many of the rating committees then in operation, especially as Chairman of the Irish & English Traffic Committee, over which he presided from 1925 until his retirement. He was also a councillor of the Richmond Borough Council. Among those present at the cremation at Mortlake Crematorium were the following:—

Messrs. J. R. Pike, Chief Rates & Charges Officer, Railway Executive ; H. G. N. Read, Assistant Commercial Superintendent, London Midland Region, also representing Mr. A. E. Hammett, Commercial Superintendent ; F. E. Bailey, Assistant to Commercial Superintendent (Overseas & Continental), London Midland Region ; J. Cowing, Assistant to Commercial Superintendent (Freight Rates & Charges), London Midland Region ; W. J. Amies and J. F. Bonaker, Railway Clearing House ; H. D. Poole, Assistant (Rates & Charges) to Commercial Superintendent, Western Region ; H. B. Mack, representing the Belfast Steamship Co. Ltd. ; T. E. Argile, former Chief Commercial Manager, L.M.S.R. ; C. Johnstone, former Assistant Chief Commercial Manager (Passenger), L.M.S.R. ; A. J. Price, former Assistant (Rates) to Commercial Superintendent, London Midland Region; W. M. Perts, former Commercial Superintendent, Southern Region.

Institution of Railway Signal Engineers

Annual dinner and dance

The annual dinner of the Institution of Railway Signal Engineers was held at the Remorandt Hotel, London, on December 7, when the chair was taken by the President, Mr. S. Williams, Signal & Telecommunications Engineer, London Midland Region, British Railways. The principal guests were Mr. John Elliot, Chairman, Railway Executive, Lt.-Colonel H. B. Everard, President of the Permanent Way Institution, and Mr. J. W. Watkins, Chief Regional Officer, London Midland Region.

Mr. Williams was supported by Messrs. T. S. Lascelles and T. Austin, Vice-Presidents; A. F. Bound, Past-President and Honorary Member; C. Carslake, H. M. Proud, H. H. Dyer, F. L. Castle, A. Moss, R. Dell, and F. Horler, past-Presidents; E. G. Brentnall, D. G. Shipp, C. G. Derbyshire, J. C. Kubale, and W. Owen, Members of Council; G. J. Dickin, Honarary General Secretary; B. Reynolds, Honorary Treasurer; and W. H. Challis, Honorary Secretary, General Purposes Committee, responsible for the arrangements.

Others present included Messrs. J. C. L. Train, Honorary Member; B. W. C. Cooke, Editor, *The Railway Gazette;* D. R. Lamb, Editor, *Modern Transport;* W. J. A. Sykes, Assistant Electrical Engineer, Southern Region; and Major A. J. Gillies, District Signal Engineer, Bengal Nagpur Railway, Calcutta.

Mr. John Elliot, proposing the toast of the Institution, said that in Mr. Williams they were fortunate in having at their head a man of energy, character, ability, humanity, and tact. He was a great worker and enthusiastic in the interests of British Railways and the L.M.R. Mr. Elliot then recalled his own early experiences when colour-light signalling was being introduced on the former Southern Railway and remarked that it was fitting that today the Signal & Telecommunications Engineer should have come into his own. Evidence of his work was seen in the increased movement and greater volume of traffic dealt with under colour-light signalling and track circuiting and a further matter of interest was the experiment being made by Mr. Train and his officers in connection with improved automatic train control. Had they more money they would go ahead much faster.

Freight Traffic Cleared

For reasons they all knew British Railways had been compelled some time ago to take a serious decision to cope with difficulties arising in the movement of freight traffic and had determined to take steps to enable them to go into the present winter with a clean slate. They had now completely cleared the accumulation and there was no restriction at all on any route. Hard work on the part of many had been necessary to do that. Since September 4½ million tons of coal had been moved, with a record of 42,000 wagons at one weekend.

During the five months from May to September they had had to carry 250 million passengers, an increase of 14½ million over 1950, and of those some 500,000 went by special trains to the Festival of Britain. They took £1,000,000 daily and it was going to be difficult to prove that British Railways had fallen down anywhere on the job. There was too much easy-going criticism about a public service which was going through its difficulties as were other industries, and statements were made about finance and other matters which were entirely wrong. They had had only four short years in which to work and already a great deal had been done.

Mr. Williams, responding, expressed their gratitude to Mr. Elliot for proposing the toast, and to his successor in office on the London Midland Region, Mr. J. W. Watkins, for accompanying him. They were fortunate in having such a good attendance, although railway representatives were in the minority, which might indicate the survival of that fundamental principle of private enterprise, namely, quick grasp of opportunity to make contact with the customer. There was no branch of engineering in which better understanding was maintained between user and supplier.

The activities of the Institution were continuing with as much vigour as ever. Valuable papers had been read by overseas engineers and the educational work undertaken by the Council was proceeding with encouraging assistance from the Railway Executive. He hoped that the efforts of the Council to raise the standard of qualifications for membership would receive suitable recognition in due course and thus help the railways to secure and retain the services of the best technical men in the face of competition from industry. High standards of specialised knowledge and ability should be encouraged as their work was continually increasing in magnitude and complexity.

The President then referred to the summer meeting at Derby, the visit to the new signalling installation at York, and other activities of the session. He thanked Mr. W. H. Challis, the General Purposes Committee, and the Institution officers, for the excellent arrangements made for the dinner.

Mr. T. S. Lascelles, Vice-President, proposing the toast of the visitors, referred to the ties of friendship and technical collaboration existing between the Institution and the Permanent Way Institution, presided over by Lt.-Colonel Everard. That body, which had been founded by William Meredith in 1884, was fortunate in having a much wider scope for membership, and it took full advantage of it.

Lt.-Colonel H. B. Everard, responding, said that such co-operation was essential if the civil engineers and the signal engineers were both to achieve their respective tasks, which they carried out with the valued assistance of the firms responsible for the manufacture of signal, telecommunications, and other railway equipment.

Overseas Members

Mr. T. Austin, Vice-President, proposed the toast of the overseas members, and said that although the total membership was now only about 750, some 200 of those members were scattered over the world, from the north of Europe to the Antipodes. The work done by some of the local sections was greatly appreciated.

Major A. J. Gillies, responding, said that it was encouraging to note the interest being taken in the work of the Institution by overseas members and others. Transport problems in the larger cities abroad were becoming very similar to those obtaining at home. In India they had carried through a grouping of the railways into six zones and signals and telecommunications had been amalgamated.

The dinner was followed by dancing.

Bridge Repairs on the Rhaetian Railways

Reconstruction necessitated by earth movement

In addition to its scenic beauties, the section of the metre-gauge Rhaetian Railway from Chur, the terminus of a Federal Railways standard-gauge main line, to the mountain resort of Arosa is of unusual engineering interest. In 16 miles, 45 per cent. of which is curved, the line climbs nearly 3,800 ft., and there are 22 tunnels, 1½ miles in aggregate length, and 40 bridges totalling a little over a mile. Of the 145 bridge spans, 111 are of stone or mass concrete, 16 of steel, and 18 of reinforced concrete.

Most bridges cross deep gorges with steep sides, and are such that usually one end of each bridge is founded on comparatively solid shale and the other has had to be built on moraine soil which has a tendency to creep. This movement has, in the course of time, played havoc with the bridges and has necessitated extensive and complicated reconstruction and repair works.

Moreover, many of the concrete bridges have also suffered from weathering because of unsuitable aggregate in their construction. Fortunately, the large reinforced concrete structures, including the famous viaduct at Langwies, have not been affected so seriously, but others, including the Castiel Viaduct, have had to be completely rebuilt. Three recent major repair works have been described by Herr C. Mohr, an engineer of the Rhaetian Railways, in *Schweizerische Bauzeitung.*

The Schmalztobel Viaduct carries the line across the gorge on a 60-m. (197-ft.) radius curve. The bridge is 61·8 m. (203 ft.) long, and has six arches, each of 8-m. (26-ft.) clear span. On the Chur side, the piers are founded on decaying rock which is slowly moving towards the valley. A survey in 1941 revealed the vertical settlement of the first three arches on that side to a maximum of 8⅜ in. and a horizontal movement of 5½ in. In contrast, arch No. 4 had been lifted by 7½ in. and was found to be seriously weakened by fissures. This arch was therefore first supported on timber falsework, and then arches 1 and 5 were closed by means of two reinforced concrete walls parallel to the centre line of the track, braced together and built on a strong quarry stone foundation. These walls were constructed, as a temporary measure, to secure the entire structure against further disintegration. At the same time, a drainage scheme was carried out, greatly reducing the erosive power of the torrent. The success of these measures was proved by the fact that seals placed across the cracks remained unbroken for seven years.

The final reconstruction was carried out in 1950 when, without interruption to traffic, the damaged spandrel walls and filling of the arches were removed and replaced by solid concrete. Arch No. 4 was reconstructed completely, this time in pre-cast concrete blocks with a crown hinge, permitting the free movement of the two arch segments.

Similar problems were met at Peistertobel Viaduct, some 330 yd. above Peist Station. This viaduct is similar in all respects to that at Schmatztobel, but in

addition, there is a gradient of 1 in 50 over it. Here, repair works by means of cement pressure grouting had already been necessary in 1935. In 1948, dangerous cracks appeared, and major repairs of arches 5 and 6 were necessary. The extrados was carefully cleared; any further widening of the cracks was forestalled by strong steel ties, and the cracks were filled with cement mortar. The extrados was then filled with concrete, the spandrel walls serving as shuttering, and nine lengths of rail as reinforcement against possible tensile stresses.

All this was done while traffic was carried across the span on an emergency span of broad-flange girders. As a further precaution, it was decided to construct a strong concrete invert between the foundations of the two highest piers (3 and 4) to prevent further erosion of the river bed.

Another difficult task was the reconstruction of a bridge some three miles from Arosa, carrying the track across the river and main road on four arches. The gradient there is 1 in 16·7, and the curve radius is again 60 m. (197 ft.). In the autumn of 1947, cracks suddenly appeared in the mortar joints, indicating that the outer masonry was becoming detached from the core. In view of the late season, no major repairs were immediately possible, and the pier had to be temporarily strengthened with rails, sleepers, and steel ties.

When the repair work was subsequently undertaken, it was found that the core of the arch had more or less disintegrated, apparently through faulty waterproofing and drainage; much of the mortar had been washed out, and further damage was caused by ice. It was therefore necessary to reconstruct this pier completely under traffic; it was replaced temporarily by strong timber shoring, and a 12-m.p.h. speed restriction was imposed.

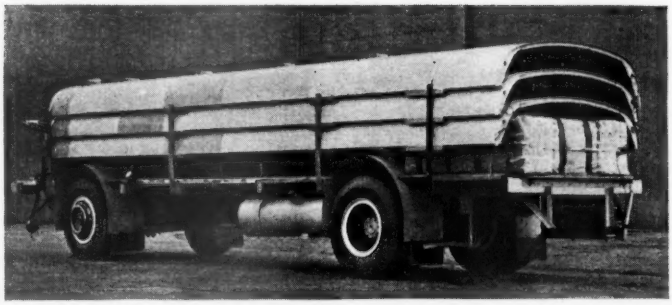
Rapid Bus Body Assembly

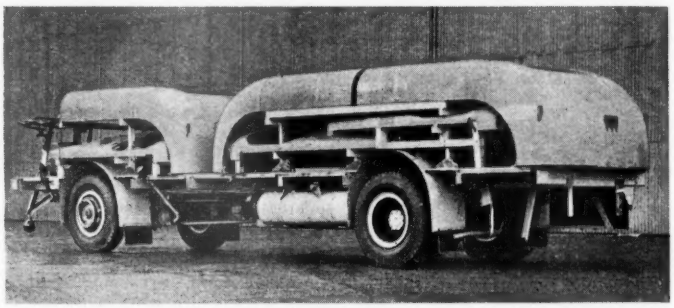
A demonstration was given recently by Saunders-Roe (Anglesey) Limited of the rapid assembly of one of its Rivaloy bus bodies on a Leyland Royal Tiger chassis, using a set of its latest type of body units as supplied in its standard knocked-down kit. These units are shown in three of the accompanying illustrations.

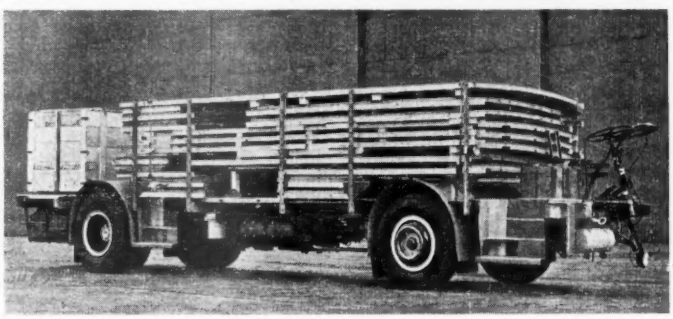
The assembly is carried out in five operations, and at the demonstration it was completed in under seven hours, or 69 man-hours; the first operation, the assembly of sides, front and rear ends, and roof occupied less than two hours. The operations can be undertaken without highly-skilled labour, and the same methods are used for production of bodies to fit any other make of chassis. One of the many advantages of this body is the use of one detail part for many purposes, enabling operators' stocks of spare parts to be kept low.

Rivaloy bodies are manufactured in three single-deck types (one on the home market chassis, and two on export chassis) and one lightweight double-deck type. A number of 40-seat single-deck vehicles is being supplied to the Compania Uruguaya Transportes Colectivos, S.A., Montevideo. The structure and details have been designed and developed to permit rapid accident repair. The ease with which damaged components and even complete units of the body may be replaced enables the vehicle to be withdrawn from service for the shortest possible period.

The single-deck bodies are built from six unit assemblies (floor, near and side frames, front and rear ends, and roof); the double-deck bodies comprise sixteen units. Once the units are coupled together, there are only items such as doors and wheel-arch valances to be installed before the vehicle is ready for service. The method of joining the components is simple, in the main by means of back-to-back alley channels bolted together, with floating anchor nuts in one channel.







Rivaloy body units manufactured by Saunders Roe (Anglesey) Limited, showing: (top), three sets of roofs, (centre), three sets of front and rear ends, (bottom), three sets of side frames, each packed on a Leyland Royal Tiger chassis

A 40-seat Rivaloy body on a Leyland Royal Tiger chassis, one of a batch of vehicles being supplied to an operator in Montevideo, Uruguay

Parliamentary Notes

Increase in Railway Freight Charges

A ten per cent. increase in rates necessitated by higher wages and other working expenses

Mr. J. S. Maclay (Minister of Transport) in the House of Commons on December 6 after Question Hour, made the following statement on B.T.C. charges:—

"The B.T.C. estimates that rises in wage rates and prices in 1951 will increase annual working expenses by at least £40 million, excluding certain wage increases granted in 1951 but made retrospective to the end of 1950. About £26 million of this is in respect of increases in wages and salaries, of which about £18 million is represented by the effects of the decision of the Railway Staff National Tribunal of November 7 last. The Commission also estimates that the rising trend of prices will further increase working expenses next year by about £11 million and that, with railway passenger and freight, and dock and canal, charges, at their present level, it would, in 1952, incur a deficit of about £39·5 million. This would be in addition to the accumulated deficit from past years which was nearly £40 million at the end of 1950, and may well be more at the end of 1951.

"The Transport Tribunal recently concluded a public inquiry into a draft Passenger Charges Scheme which, if confirmed, would produce in a full year additional revenue of about £22·8 million. The draft Scheme may be altered by the Tribunal but even if confirmed without alteration there would still be a deficit of between £16 and £17 million in a full year.

"In these circumstances the Commission applied to me under Section 82 of the Transport Act for authority to increase, as soon as possible, existing railway freight, dock and canal, charges by 10 per cent. subject to a maximum increase of 10s. a ton in the case of railway charges for merchandise by goods train and perishable traffic by passenger train and subject also to special increases of about 20 per cent. in the charges for small parcels by goods train and 50 per cent. in the charges for the carriage of returned empties. These increases would produce about £22 million in a future year. The effect of the maximum increase of 10s. a ton would be to limit the increase in the case of some long distance traffic, for example between the South and the Highlands of Scotland.

"As required by the Act, I referred the application for the advice of the Permanent Members of the Transport Tribunal, acting as a consultative committee, and asked that their advice should be tendered as soon as possible. I have received such advice in a memorandum, a copy of which is being circulated.

B.T.C. Request Modified

"The Committee recommends that I authorise, as soon as possible, the increases applied for, except that the increases in the charges for small parcels and returned empties should, like the increases in other charges, be 10 per cent. This modification would reduce the estimated yield from £22 to £21 million.

"I am satisfied that these recommendations should be accepted and I propose to make regulations accordingly, to take effect as from December 31."

The B.T.C., like other industries and services, said Mr. Maclay, could not keep charges static with the rising cost of labour and materials. They were incurring a net revenue deficiency of some £750,000 a week, and this could not be allowed to continue. The Government was not satisfied that the structure of the national transport system could secure the best and most economical service to the community. This whole question was under close and urgent examination.

Mr. Alfred Barnes (East Ham South—Lab.) said the statement was in almost identical terms with that which he introduced earlier in the year, when the then Opposition demanded a debate and the Government readily consented. "Does it not make it indefensible," continued Mr. Barnes, "when the Minister proposes to make these alterations on December 31, that the House should be dismissed without any opportunity to discuss them?" Mr. Maclay, he added, had admitted that the B.T.C. must meet the rising costs of labour and materials, and also had referred to the proposed Government action. The only statement so far on proposed Government action was the handing back to private enterprise of those sections of nationalised transport that were making a profit, whereas in this case the bulk of the burden was on the railways.

Mr. Maclay replied that it was true that the statement was in similar terms to the one previous, but in five weeks it had not been possible to achieve all the economies which, they hoped, ultimately would be achieved. On the question of the possibility of debate, the matter was debated when the regulations were laid, because they were subject to annulment. Some time had elapsed on the previous occasion before the regulations were debated.

Mr. James Callaghan (South East Cardiff—Lab.) asked the Minister to reconsider the proposals to denationalise part of road transport. Could the Minister possibly explain how it could help the transport system, which could be efficient only if it was integrated, to hive off a part of it?

Mr. Walter Monslow (Barrow-in-Furness—Lab.) said that co-ordination of inland transport was the only solution to the economic difficulties of the railway industry, and that the Government had no consideration for transport or for railways in particular if they took off road haulage.

Memorandum to Minister

Later, Mr. Maclay circulated the following memorandum which he had received from the Permanent Members of the Transport Tribunal acting as a consultative committee:—

"1. By a letter dated November 23 you requested our advice on a proposal made by the B.T.C. that they should be authorised under section 82 of the Transport Act, 1947:

(*a*) to make the increases in railway freight rates and charges described in the Commission's memorandum in the manner following:

Proposals

(i) A general increase of 10 per cent. (except as hereunder provided) on existing rates and charges, including miscellaneous charges, in respect to merchandise traffic by goods and passenger trains, subject to a maximum increase of 10s. per ton in the case of merchandise by goods train and perishable traffic by passenger train.

(ii) An increase of 50 per cent. in the existing scale of *additional* charges in respect to small parcels (other than returned empties) by goods train ("smalls" bonus). This is estimated to be equivalent to an increase of approximately 20 per cent. on this class of traffic.

(iii) An increase of 50 per cent. in the existing charges for the carriage of returned empties.

(*b*) to increase by 10 per cent. all the harbour, docks, piers, canals and inland waterways charges now in operation which are regulated by statutory provisions.

"2. In your letter, you informed us that you were impressed with the importance of taking the earliest practicable steps to prevent the financial position of the Commission from becoming unmanageable and asked that our advice should be tendered as soon as possible.

"3. If we may be permitted to say so, the request for our advice as a matter of urgency has placed us in some difficulty.

Effect on Passenger Charges

"4. We are on the point of concluding a public hearing into a Passenger Charges Scheme submitted by the Commission. We shall therefore in the reasonably near future have in effect to decide what, if any, additional contribution can be expected of passengers in relief of the evident financial necessities of the Commission. In these circumstances we do not think it would be right for us to enter upon any detailed discussion in this memorandum of the extent of those necessities.

"5. All that we think it proper to say at this juncture is that as a result of the examination of the financial position and prospects of the Commission which the public inquiry has involved and of the additional information in the Commission's memorandum we are satisfied: (*a*) that the general considerations advanced by the Commission are in substance well founded; (*b*) that upon such an estimate as is possible in the circumstances of the moment the annual deficit of the Commission at the existing levels of freight and passenger charges would prove to be not less than £35 million and might well be £40 million; (*c*) that whatever additional revenue it may be equitable and practicable to obtain from the passenger services can do no more than alleviate the financial position of the Commission; (*d*) that there is at present no prudent alternative to an increase in freight charges aimed at providing in a full year additional revenue of the order of £20 million; and (*e*) that a general increase of 10 per cent. on existing rates and charges is the best available means of meeting the Commission's necessities.

"6. We are not satisfied that there is any sufficient justification for imposing what is in effect a special surcharge on the small parcels and returned empties traffic.

"7. We recommend accordingly that regulations be made as soon as possible authorising the Commission to make: (*a*) the additional charges described under head (i) of the *Proposals* set out in paragraph 1(a) of this memorandum, subject to the deletion in head (1) of the words '(except as hereunder provided),' and (*b*) the additional charges specified in paragraph 1(b) of this memorandum.

Hubert Hull.
A. E. Sewell.
J. C. Poole."

December 3, 1951

Questions in Parliament

Nationalised Boards

Mr. F. J. Erroll (Altrincham & Sale—C.) on December 6 asked the Prime Minister if he would publish, either in the *Official Report* or in a White Paper, an up-to-date comprehensive list of all members appointed to central and regional nationalised boards of a commercial character, with details of individual salaries, pensions and expenses allowed, and a separate list showing all individuals holding more than one appointment.

Mr. Winston Churchill: I am arranging for the publication of this information in the form of a White Paper, which will be published shortly.

Transport in the North and Midlands

Mr. Ellis Smith (Stoke-on-Trent South—Lab.) on December 3 asked the Minister of Transport (1) if he would appoint a working party to report on the transport problems and needs of the area within a 50-mile radius of Manchester; and (2) if he would have an investigation made into the transport needs of North Staffordshire.

Mr. J. S. Maclay: In view of the general duty laid on the B.T.C. by the Transport Act, 1947, to see that adequate and efficient transport facilities are provided throughout the country, it is, at any rate at present, for the Commission to consider whether the appointment of special committees is necessary.

Draft Charges Scheme

Mr. A. Edward Davies (Stoke-on-Trent North—Lab.) on December 3 asked the Minister of Transport what period he had allowed under the Transport Act, 1947, as the limit for the submission of charges schemes by the B.T.C.

Mr. J. S. Maclay stated in a written reply: In August last my predecessor allowed a further period of two years for the submission of outstanding schemes. This further period is likely to be required for the draft scheme for dock charges, but the Commission then expected to need only a few months for a merchandise charges scheme. Further time may be required for all concerned to consider the matter in the light of Government intentions in regard to transport.

Railway Accidents

Lt.-Colonel W. H. Bromley-Davenport (Knutsford—C.) on December 3 asked the Minister of Transport how many derailments and other accidents on railways had been brought to the notice of his Chief Inspecting Officer during the past year on the main line north from Euston, together with the number of casualties.

Mr. J. S. Maclay stated in a written answer: During the twelve months to November 19, 1951, I received statutory reports of 66 train accidents, including 27 derailments, on the main lines from Euston to Carlisle, Glasgow, Birmingham, Holyhead, Manchester, and Liverpool. These included the serious derailment at Weedon, in September, and another ten accidents in which 30 persons were injured slightly.

Transport Costs from Scotland

Mr. Robert Boothby (East Aberdeen—C.) on November 20 asked the Secretary of State for Scotland whether he was aware that a principal reason for the failure to achieve industrial expansion in the North of Scotland was the high cost of transport to the southern markets; and whether he would examine, with the Minister of Transport, the possibility of reducing freight charges on long hauls by a flat rate.

Mr. James Stuart wrote in reply: The Minister of Transport and I are aware of the high cost of transport from the North of Scotland to southern markets. I understand the B.T.C. is now preparing for submission to the Transport Tribunal a draft scheme of freight charges, keeping in mind the recommendations of the Committee on Highland Transport Costs.

Steel Supplies

Sir Ralph Glyn (Abingdon—C.) on December 7 asked the Minister of Supply what steps should be taken by engineering firms engaged in export trade to British colonies to obtain the necessary licences for steel, as the nature of the production did not qualify for a D.O. Order.

Mr. A. R. W. Low (Parliamentary Secretary to the Ministry of Supply) in a written answer stated: At present only sheet steel and tinplate are subject to control. Licences are issued to engineering firms by the Ministry of Supply, certificates for preferential treatment being granted exceptionally where important civil orders are being held up by lack of steel. Control will be extended to other types of steel from February 4, 1952. There are no special arrangements for exports to British colonies.

Staff & Labour Matters

Railway Shopmen

No agreement was reached at the meeting of the R.S.N.C. on December 5 to consider the application of the employees' side of the Council for a substantial increase. Although no official statement was made after the meeting it is believed that the Railway Executive tried to reach settlement on the basis of an increase of 8 per cent., which would bring the shopmen into line with other railway salaried and conciliation staff. The employees' side of the council is understood to be pressing for the same increase as has been recently conceded in the outside engineering industry, namely 11s. a week. The Council is to meet again shortly.

Miners' Wages

Mineworkers decided at a special delegate meeting on December 8 to accept the National Coal Board offer of wage increases amounting to £26 million a year. The proposals will now be submitted to the coalfield districts for final approval by December 18, and if accepted the new rates will be introduced with effect from the beginning of the first pay week after November 22.

The proposed new rates will give underground workers a total weekly rate of 140s. 6d. Surface workers will get an increase of 11s. 6d. a week and pieceworkers 2s. 3d. a shift. Provision also is made for two weeks' paid holiday for miners, but to step up production it is proposed that they should forgo the second week's holiday next year, for which payment of an extra week's wage in lieu would be made.

The National Coal Board has asked the National Union of Mineworkers to agree to stabilisation of piecework and establishment of a joint committee to consider the wage structure of the industry.

Engineering Clerks and Draughtsmen

Salary increases of 14s. a week for men, 10s. 6d. for women and proportionate increases for junior staff with effect from December 10 have been granted to about 180,000 clerical and administrative workers in the engineering industry under an award by the Clerical & Administrative Workers Union. About 50,000 draughtsmen in engineering firms (other than shipbuilding) will receive increases of 14s. a week from December 10 following negotiations between the Engineering & Allied Employers' National Federation and the Association of Engineering & Shipbuilding Draughtsmen.

Railway Medical Service to be Reorganised

British Railways are to reorganise their medical service to bring it more into line with the recommendations of the Industrial Health Advisory Committee set up by the Government in 1949, which issued its report on February 26. It will be complementary to the National Health Service as in the case of other large industrial concerns and will be in charge of the Chief Medical Officer at Railway Executive headquarters in London.

Under the Chief Medical Officer there will be a Regional Medical Officer at each of the headquarters of the six Regions, each of whom will be responsible to the C.R.O. for the day-to-day conduct of the whole of the medical services and organisations within his Region, conducting routine and special medical examinations, hygiene, first-aid, advice on welfare, and all other matters affecting the health of the staff.

Each Region will be divided into Medical Areas in charge of a full-time Area Medical Officer responsible to the Regional Medical Officer. The Area Medical Officer will advise the District Departmental Officers and others concerned on medical matters. Important railway workshops will have their own Works Medical Officer.

The new organisation will call for the appointment of additional doctors who will be trained for a year in the special technique of railway medicine before taking up their appointments. It will also cover, in addition to British Railways staff, employees of the Road Haulage Executive, Docks & Inland Waterways Executive, and the Hotels Executive, totalling some 730,000 persons.

Improved Franco-Italian Connections

As the outcome of a meeting between delegates of French and Italian Chambers of Commerce in Paris from October 16 to 18, it has been decided to press for improvement of Franco-Italian railway and road connections. The building of a line between Briançon and Oulx and the reconstruction of the Col di Tenda - Ventimiglia line; extensive improvements to the Modane - Turin main line; re-establishment of the pre-war Bordeaux - Lyons - Milan through services; introduction of through services between the French Riviera and Venice, *via* Genoa; and the adoption of international through goods rates for all the railway goods traffic between the two countries are among the proposals.

Briançon is the terminus of a standard-gauge line, 67½ miles long, from Veynes, on the Marseilles - Grenoble main line, and is situated in the Durance Valley, at an altitude of 4,333 ft. 7½ miles west of the Col de Montgenèvre. A tunnel under the Col de Montgenèvre would take the line into Italian territory, 12 miles south of Oulx. Oulx, on the Modane-Turin main line, is 6¾ miles

south of Bardonecchia, on the Italian side of the Mont Cenis Tunnel. The new link would particularly improve connections between Marseilles and north-western Italy.

The Col di Tenda-Ventimiglia line, destroyed during the war, has been left derelict on Italian territory mainly because the new frontier line makes it of little interest to the Italians alone. Before the war, a section traversed part of France, connecting at Breil-sur-Roya with a line from Nice. At Fontane, six miles north of Breil, the line from Ventimiglia again entered Italian territory, continuing to Cuneo and Turin. Though situated on French territory between the two frontier stations the line was owned and worked by the Italian State Railways. It was electrified and had 60 tunnels totalling over 22 miles between Ventimiglia and Cuneo, the longest, 26,568 ft. at an altitude of 3,411 ft. under the Col di Tenda, now in French territory. The French have reconstructed the section north of Breil which is now in France, and Col di Tenda Station, 22 miles from Breil-sur-Roya, is the railhead and the French frontier station. On the Italian side, the line is worked only as far as Limone, 18 miles south-west of Cuneo, 73¾ miles from Turin, and 11¼ miles from Col di Tenda. No reconstruction has been carried out so far between Ventimiglia and Breil.

Contracts & Tenders

A contract for ten underframes and bogies for passenger brakevans has been placed with the Metropolitan-Cammell Carriage & Wagon Co. Ltd. by the Crown Agents for the Colonies, for the East African Railways & Harbours, Kenya & Uganda Section.

The Pakistan Government has placed a contract with Groupe Français, Paris, for 872 "MCJ" type four-wheel covered wagons for carrying jute. The wagons will be to the inspection of Messrs. Rendel, Palmer & Tritton, Consulting Engineers.

The Sierra Leone Development Company has placed an order with the Birmingham Railway Carriage & Wagon Co. Ltd. for three A1A-A1A diesel-electric locomotives, for 3-ft. 6-in. gauge lines. The locomotives are to be built to the approval and inspection of Messrs. Livesey & Henderson, Consulting Engineers, and will each be fitted with an engine of 1,000 h.p. to be supplied by Sulzer Bros. (London) Ltd. The electrical equipment is to be supplied by Crompton Parkinson Limited.

The Indonesian State Railways have recently placed the following contracts:—

N.V. Allan & Company, Rotterdam, Holland; J. J. Beijnes, N.V., Beverwijk, Holland; Werkspoor, N.V., Amsterdam, Holland: 88 "CL" third class coaches.

Groupe Français, Paris, France: 49 "ABL" first and second class coaches; 27 "CL" third class coaches.

Simmering-Graz-Pauker, A.G., Vienna, Austria: 11 "CDL" third class & baggage coaches; 15 "FL" first, second and third class dining cars; 30 "CFL" third class combined dining & kitchen cars; 35 "CL" third class coaches; 43 "DL" baggage cars.

The Board of Trade Special Register Information Service recently stated the United Kingdom Trade Commissioner at Melbourne had notified the Commercial Relations & Exports Department that a call for tenders (No. ME. 1295) had been issued by the Commonwealth Railways for the manufacture, supply and delivery of wagon bodies and underframes (without bogies) to be used on 3-ft. 6-in. gauge lines as follows:—

60 cattle wagons
50 covered goods wagons
75 open goods wagons
12 sheep wagons

Tenders should reach the Secretary, Commonwealth Railways, Melbourne, before 4 p.m. on January 15, 1952. A copy of the specifications and drawings is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade, Commercial Relations & Exports Department, Millbank, S.W.1.

SOFTWOOD PURCHASE LICENCES.—Discussions are being held between the Ministry of Materials and the Timber Trade Federation concerning the arrangements to be made for returning to private trade the import of softwood from North America and Eastern Europe and for ensuring the global limitation of softwood purchases already announced. Pending the conclusion of these discussions, and an announcement of detailed plans for softwood imports in 1952, which will be made as soon as possible, it has been decided to put into operation various measures to avoid prejudicing such arrangements as may be made for 1952 imports. This decision has been reached after consultation with representatives of the T.T.F., who are satisfied that it will have no adverse effect on timber supplies as a whole, and particularly as at this time stocks are ample. Softwood open individual import licences have been revoked, as from November 27, and goods other than those already *en route* before November 27 arriving on and after that day will require an import licence. Goods *en route* before November 27 are being admitted without import licence. These licences will be freely granted.

Notes and News

Vacancy for a Senior Draughtsman.—Applications are invited for the post of locomotive, carriage and wagon draughtsman required by the Peruvian Corporation Limited. See Official Notices on page 671.

November Steel Production.—Steel production in November was at an annual rate of 16,437,000 tons, as compared with 15,629,000 tons in October and 17,472,000 tons in November, 1950. The output of pig iron was at an annual rate of 10,194,000 tons as compared with 9,865,000 tons in October and 10,042,000 tons a year ago.

British Railways Coal and Steel Carryings.—Last weekend 423,320 tons of deep-mined and open-cast coal were cleared by British Railways. This makes a total for the week of 3,289,790 tons and is the highest figure since the beginning of June. During the week ended December 1, a total of 203,129 tons of iron and steel were conveyed from the principal steelworks.

Canadian Pacific Railway Company.—At a meeting of the directors of the Canadian Pacific Railway on December 10 a final dividend of 75 cents a share on the ordinary capital stock was declared in respect of the year 1951. Of this dividend 25 cents is attributable to railway earnings and 50 cents to income from other sources. A final dividend of 2 per cent. was declared on the preference stock.

Coal Stocks Maintained.—Sir Hubert Houldsworth, Chairman of the National Coal Board, stated recently that a combination of higher output, good weather, and special efforts by the railways, had enabled coal stocks to be built up to an extent which would not have been thought

Pennine Electrification Progress

Goods train from Dewsnap Sidings to Middlesbrough piloted by two electric locomotives at Oxspring Viaduct, near Penistone, on section of Manchester-Sheffield-Wath line (Eastern Region) already electrified east of Dunford Bridge

possible a few months ago. Figures at the end of November would show that stocks stood at over 17,000,000 tons. They were actually able to add to stocks instead of eating into them during November, Sir Hubert said. Even with a smaller labour force, production this year would be 7,000,000 tons higher than in 1950. Nevertheless, he added, 1952 was likely to be an even more difficult year for the industry than 1951 because of the probable increased demands for coal.

L.M.R. Christmas Traffic Plans.—The London Midland Region will run 688 additional long-distance passenger trains during the Christmas holidays. Of these, 102 will start from Euston and 55 from St. Pancras. Peak travel days will be December 21 (168 extra trains), and December 22 (196). December 27 is expected to be the heaviest day for return traffic, and 153 additional trains have been arranged.

Freight Congestion at Salzburg.—According to a recent report, large quantities of maize consigned from Jugoslavia to stations in Western Germany are held up at the Austro-German frontier at Salzburg, where the sidings are said to be full, and goods traffic in danger of serious dislocation. The delays are stated to be caused by the German Customs authorities taking an exceptionally long time to examine each wagon.

New Uniforms for British Railways Staff.—New style uniforms have been adopted for British Railways staff, and the first issue is expected to be made to some grades before the end of the year, with the bulk issue in January, 1952. The new uniforms, two of which are illustrated below, will be in dark blue cloth with gilt, chromium, or black buttons. The cloth has been selected after tests for durability and colour. Only 13 qualities will be needed instead of 38 as at present. Materials for overcoats and caps will be shower-proofed. Peaked caps will be worn and cap badges will be of metal so that they can be transferred from old to new uniforms. The badges will be the B.T.C. emblem, with a panel in the Regional colours for stationmasters and other supervisory grades, and the standard British Railways totem for non-supervisory grades. Guards, passenger porters, ticket collectors, and other grades who come into contact with the public will have an indication on their cap badge of their grade. Uniforms for women have been redesigned and will be in dark blue cloth with chromium or black buttons. The peaked cap has been replaced by a smart darted beret in blue cloth with silver piping in seam of front bevel.

North Eastern Region Ambulance Awards.—Mrs. H. A. Short, wife of the Chief Regional Officer, North Eastern Region, British Railways, presented diplomas of the Order of St. John to Mr. J. C. Hansell, Class Instructor, and Mr. C. E. Addison, District Secretary, at Leeds, on November 22, in connection with the North Eastern Region ambulance awards.

Printwell Tracing Agency.—Six months ago the Printwell Tracing Agency was established at 166, Cranmore Boulevard, Shirley, Birmingham, and since then has been engaged exclusively in the production of hand-made tracings from all types of drawings associated with the design of rolling stock. This firm, which employs a considerable staff having extensive experience of this type of work, specialises particularly in the preparation from working drawings of complete sets of tracings as supplied by manufacturers of rolling stock with all completed orders.

Western Region Christmas Arrangements.—The many additional Western Region services at Christmas include early morning branch-line trains to connect with overnight long-distance services, and a train starting from Ealing Broadway and calling at principal stations to Swansea. The advertised steamer services will be operated over the holiday with certain modifications. On the Fishguard/Rosslare route, the 6.55 p.m. train from Paddington on December 20 will connect with a special steamer from Fishguard to Rosslare. The services from Fishguard to Waterford on December 24 and from Waterford to Fishguard on Christmas Day will be cancelled. The sailings from Cork to Fishguard on December 24 and from Fishguard to Cork on Christmas Day also will be cancelled, as will sailings from the Channel Islands to Weymouth on Christmas Day and from Weymouth on the morning of December 26.

Thos. Cook & Son Ltd. Dramatic Society.—The Dramatic Society of Thos. Cook & Son Ltd. recently presented three performances of the three-act comedy "Sit Down a Minute, Adrian!" at the Porchester Theatre, Queensway, London.

Bus Services Co-ordinated in Grays and Tilbury.—Bus routes serving Grays and Tilbury, transferred in September from the Eastern National Omnibus Co. Ltd. to the London Transport Executive, are being reorganised. The changes will come into effect on January 2.

Dover-Dunkirk Train Ferry Damaged.—The train ferry *St. Germain*, conveying sleeping cars of the "Night Ferry" service from Paris to London, collided with the Prince of Wales Pier, Dover, while approaching the ferry berth in thick fog on December 11. The stern, including the tracks aft on the train deck, was damaged, so that railway vehicles could not be disembarked. Sleeping car passengers went ashore and on to London in ordinary coaches. The *St. Germain* was taken to Dunkirk for repairs.

"Britannia" Class Locomotives.—"Britannia" Class locomotive No. 70004, *William Shakespeare*, which, as recorded in our issue of October 26, was taken out of service on October 21, was returned to regular working service on Friday, December 7, when it hauled the 9 a.m. boat train from Victoria to Dover. Other engines of this class, which were also taken out of service temporarily as a precautionary measure, are now coming back into traffic. Eight will be back in service by Christmas and the remainder soon afterwards.

Denationalisation of Road Transport.—The General Secretary of the Transport & General Workers' Union, Mr. Arthur Deakin, stated recently that the general executive council of the union wished to place on record its apprehension and concern at the suggestion that the Government might proceed with the denationalisation of commercial road transport. A properly co-ordinated and efficient transport system could only be developed and maintained with the B.T.C. giving effect to the provisions of the 1947 Transport Act and co-ordinating, through its various Executives, every form of inland transport—reintroduction of competitive elements into the transport industry would only bring back the chaotic conditions that existed between the wars.

Southern Region First-Aid Awards.—At an informal ceremony at Waterloo Station on November 26, Mr. C. P. Hopkins, Chief Regional Officer, Southern Region, British Railways, presented first-aid awards to men of the Southern Region in recognition of outstanding acts of first aid and for long service to the Railway Ambulance Movement. Mr. Hopkins, who was supported by Mr. N. McK. Jesper, Chief of Police, London Area, Dr. L. J. Haydon, Chief Medical Officer, Southern Region, Mr. J. Lithgow, Regional Welfare Officer, Mr. S. W. Smart, Superintendent of Operation, Mr. T. E. Chrimes, Motive Power Superin-

Two examples of the smart new style of standard uniforms to be issued in bulk to British Railways staff next month

OFFICIAL NOTICES

THE proprietors of British Patent No. 615298 are prepared to sell the patent or to license British Manufacturers to work thereunder. It relates to Articulated railway vehicles. Address: BOULT WADE & TENNANT, 112, Hatton Garden, London, E.C.1.

LOCOMOTIVE, Carriage and Wagon Senior Draughtsman, 30/35 years of age. Qualifications: Must have served a full general apprenticeship in an engineering workshop (preferably railway) and have had at least five years Drawing Office experience with some time in an executive capacity. A knowledge of Spanish an advantage. Future prospects. Apply to the Secretary, PERUVIAN CORPORATION LTD., 144, Leadenhall Street, London, E.C.3.

GLOSSARY OF WOOD. A technical dictionary for all associated with timber and its uses. Ten thousand terms about timber—the common and the little known, the old and the new. Ten thousand definitions covering the entire field of timber and its uses—growth, marketing, utilisation. The commercial timbers, their qualities and uses, tools and woodworking equipment, are all here explained simply, concisely and accurately. Illustrated by many clear line drawings. Price 21s. net. By post 21s. 9d. Tothill Press Limited, 33, Tothill Street, London, S.W.1.

COMPANY manufacturing diesel-electric locomotives invites applications for the following staff:—Designer Draughtsmen and Draughtsmen who are experienced in the electrical and mechanical design of D.C. Control Equipment. Good salaries paid to men with exceptional qualifications. Three years agreement and every facility to find suitable living accommodation will be given. Staff Assurance Scheme and good working conditions. Applications from men with industrial control gear experience will also be considered. Offers only to first class men. Please apply giving full details of training, experience, age, etc., to Box 295, *The Railway Gazette*, 33 Tothill Street, London, S.W.1.

WE buy used or unserviceable Steel Files at good prices in lots of 2 cwts. or more.—THOS. W. WARD LTD., R.S. Dept., Albion Works, Sheffield.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2s. Post free 2s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

JUST PUBLISHED.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY SIGNALLING AND COMMUNICATIONS INSTALLATION AND MAINTENANCE. A practical guide, especially intended to help Signal Inspectors, Installers, Fitters, Linesmen, Draughtsmen, and all concerned with installing and maintaining Signal, Telegraph, and Telephone Equipment. 416 pp. Many illustrations. Cloth. 8s. By post 8s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

tendent, Mr. F. E. Campion, Civil Engineer, and Mr. F. A. Trott, Regional Ambulance Centre Secretary, referred to the first-aid movement as an important feature of railway welfare work. A tribute to the Southern Region, said Mr. Hopkins, was that the Horsham team had recently won the St. John Grand Prior's Trophy in competition with leading teams throughout the country.

Tunnel Collapse in Italy.—The driver and fireman were killed and some 30 passengers injured recently when an Italian State Railways passenger train ran into a pile of fallen rocks and mud in a tunnel near Mornago Cimbro, on the line between Milan and the Swiss frontier at Luino.

Winter Rail Transport Problems Discussed.—Last month,* as recorded in our issue of December 7, Mr. H. A. Short, Chief Regional Officer, and Mr. E. W. Arkle, Commercial Superintendent, North Eastern Region, British Railways, visited a number of towns to discuss winter rail transport problems with leading traders. Tees-side also was visited in addition to the places mentioned in last week's issue.

Railway Building in China.—An agency message states that a large railway network is being built to connect Soviet Central Asia with north-west China. The Peking Government proposed lines from north and west China to meet a branch running south-eastwards across Sinkiang from the Turksib Railway. Engineering surveys and actual construction work are said to be in progress.

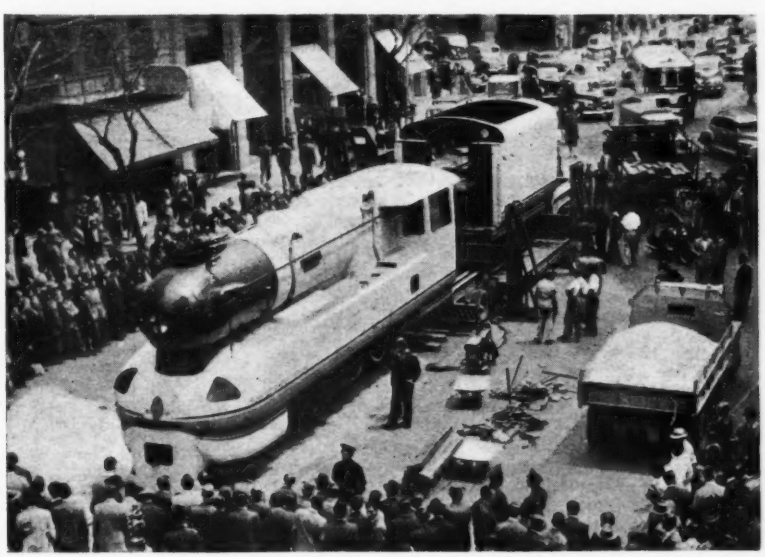
Closing of North Eastern Region Station.—Bowling Junction Station, situated 1¼ miles from Bradford Exchange and 1¼ miles from Low Moor Station, was closed on December 3. Bradford Corporation operates a bus service from Bradford to Bowling at 6 min. intervals and this service can be joined at a point approximately ½ mile from Bowling Junction Station. Received parcels were already dealt with at Bradford and forwarded parcels are now collected from Bradford or can be taken to Bradford Station.

Safe Driving Competition at Hull.—Motor drivers and vanmen numbering 131 received safe driving awards at a ceremony in Hull on November 24. Mr. L. Ballan, District Commercial Superintendent, Hull, North Eastern Region, presided, and the awards were presented by Mr. T. Brown, Goods Agent, who is retiring early in the new year. About 880,000 miles were travelled by the competitors and over 90 per cent. of those who entered the competition gained an award. The presentation was followed by a social evening and cabaret.

Matterhorn Railway Project.—The Swiss Federal Government has informed the Italian Government that it has decided to refuse permission to erect buildings or make any artificial alteration on the Swiss part of the Matterhorn. This virtually ends the scheme for a cable railway, as the building of a station on the summit or the hewing of a station and restaurant out of the rock could not be achieved without touching Swiss territory. It remains to obtain a similar decision from the Italian Government, which is the object of an international petition.

Wagons-Lits Company Anniversary.—The International Sleeping Car Company at the recent celebration in Paris of the 75th anniversary of its formation announced that although its rolling stock had diminished by 400 cars compared with pre-war, had carried in 1950 a total of 1,700,000 sleeping-car passengers, against 1,350,000 in 1938, and served 5,000,000 meals in its restaurant cars, against 3,500,000. The company, it was announced, is constructing a new type of sleeping car, comprising 20 single-berth, second class compartments, and is planning an extensive provision of sleeping accommodation for third class passengers.

Experimental Locomotive in Argentina.—An experimental metre-gauge locomotive, financed by the Industrial Credit Bank and designed and built by Engineer Livio Dante Porta of Rosario, has been placed on exhibition in Buenos Aires. No specifications have been made public, but it is claimed that the tractive effort of this locomotive at drawbar is approximately double that of comparable units in service, and its fuel consumption roughly half. The weight of the locomotive is 68 tons and that of the tender 42 tons. The normal drawbar tractive effort is 2,100 h.p. and it is stated that on trial runs loads of



Metre-gauge locomotive built in Argentina, on exhibition in Buenos Aires

2,500 tons have been hauled at a speed of 60 km.p.h. If further tests are satisfactory, it is possible that a number of this type will be built for service on the Argentine railways.

Window Wipers in Motormen's Compartments.—Returning a verdict of "Accidental Death" at a recent inquest on a man killed by a multiple-unit electric train while working on the line, the jury added a rider suggesting that windscreen wipers in motormen's compartments should "invariably be in good working order." The motorman of the train said there was a drizzle at the time, but he was not using the windscreen wiper. In heavy rain the wiper was likely to smear the glass.

Permanent Way Institution: Visit of President to Leeds Section.—At the meeting on November 13 of the Leeds Section of the Permanent Way Institution, Lt.-Colonel H. B. Everard, President of the Institution, and Chief Officer, Engineering (Maintenance), Railway Executive, was present. The subject was "Talks on the 1951 Summer Convention held in Holland last May." The subject was opened by Mr. A. F. Fielding, District Operating Superintendent, London Midland Region, Leeds, and illustrated by lantern slides exhibited by Mr. R. C. Mosedale, Secretary of the Leeds Section of the Institute and a member of the technical staff of the District Engineer, Leeds, North Eastern Region. Mr. A. Dean, Chief Engineer, North Eastern Region, was present.

Forthcoming Meetings

December 14 (*Fri.*). — Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. "Low Pressure Reciprocating Seals for Hydraulic Control Valves," by Mr. B. Cooke; "Some Problems of Fluids for Hydraulic Power Transmission," by Mr. A. E. Bingham.

December 14 (*Fri.*).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 6 p.m. "Non-Token Methods of Single Line Working," by Mr. A. N. McKillop.

December 15 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, in the Manchester College of Technology, Sackville Street, Manchester, at 2.30 p.m. Quiz on questions of permanent way interest.

December 17 (*Mon.*).—Institute of Public Administration, at Livingstone Hall, Broadway, S.W.1., at 6.15 p.m. Sixth lecture in the series "Can the Public Services learn from Industry?": Major R. H. Thornton, Member of the Board, B.O.A.C., and a Director of Alfred Holt & Company.

December 17 (*Mon.*).—Institute of Transport, 80 Portland Place, W.1., at 5.45 p.m. Annual general meeting of corporate members.

December 19 (*Wed.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1., at 5.30 p.m. "Railway Wind Tunnel Work." by Mr. D. W. Peacock.

December 20 (*Thu.*).—Institute of Transport, Northern Ireland Section, at 21 Linenhall Street, Belfast, at 6 p.m. "My trip to the U.S.A. and Canada" by Colonel S. G. Houghton, Chairman, Northern Ireland Shipowners' Association.

Railway Stock Market

This week has seen the down trend in markets accentuated with British Funds at fresh new low levels for many stocks, including War Loan 3½ per cent., which has fallen below the 80 level, and now yields nearly 4½ per cent. Sentiment has been affected by the news that the Banks are tightening up on credit facilities, that borrowing will cost more, and that the Capital Issues Committee is to submit all applications to "a very strict and searching scrutiny." Viewed from the Stock Market angle there will be a much smaller volume of credit available for speculative business. With borrowing becoming dearer, and the raising of fresh capital more difficult unless for rearmament, export, or other essential purposes, many companies are tending to sell Gilt-edged and other investments to increase their cash resources. The substantial fall in British Funds is a direct consequence of the raising of the Bank rate and the dearer money policy being developed as a means of checking inflation and strengthening the value of the £. The market is wondering whether the authorities now feel that the fall in British Funds has gone far enough. Many brokers are advising their clients not to sell if they can hold for a period because it is argued that in time prices of Government stocks are likely to rally, assuming the drive against inflation succeeds.

On the other hand the view is also growing that in relation to British Funds, industrial shares may be overvalued, bearing in mind that at the present time some yield little more than the 4½ per cent. now virtually ruling for War Loan. Also, the prospect of higher dividends in the future may depend in many respects on E.P.T. which is to rule as from January 1 next, although the basis on which this new tax is to be calculated may not be announced until the Budget next April. The City has been intrigued by the news that British Transport has arranged to borrow £60 million in one-year 1¾ per cent. Guaranteen stock at par from the National Debt Commissioners. This is in effect short-term borrowing from the Treasury; and it is possible that other nationalised undertakings may borrow on similar terms if they require more finance, and thus leave the issue of additional long-dated stock until general market conditions are favourable for a public issue. The pending issue of additional coal stock for compensation purposes will have to be in 3½ per cent. Treasury stock and the market believes that nearly all this additional stock will be sold in view of the current market price.

There was not a great deal of business passing in foreign rails. Leopoldina stocks continued prominent because they are generally still somewhat below the expected total pay-outs for the various stocks. This week there was a tendency for debentures to be bought and for ordinary and preference to be sold. The ordinary and preference eased to 10¾ and 28, while the 4 per cent. debentures were 101¾, and the 6½ per cent. debentures 150½. Leopoldina Terminal 5 per cent. debentures have not kept best levels at 104, and the ordinary units were 1s. 7½d. United of Havana stocks fell sharply in the absence of any further news of take-over developments; the 1908 debentures were down to 17. Antofagasta ordinary and preference at 15 and 70 respectively reflected profit-taking. Nitrate Rails shares were 24s. 6d. and Taltal eased to 17s. 6d. San Paulo 10s. units receded to 14s. 3d. and Brazil gold bonds were 5¼. Manila "A" debentures at 76 and the preference shares at 7s. 9d. showed steadiness.

Canadian Pacifis in active dealings rose to close on 77, but at the time of writing have receded to 73, on disappointment in the market with the unchanged 6 per cent. dividend. Rise in C.P.R. investment income will probably be more marked in 1952, and will include the recent extra dividend declared by Consolidated Mining & Smelting, over 51 per cent. of the capital stock of which is owned by the Canadian Pacific. Mexican Central "A" bonds have eased to 83½. French railway sterling bonds reflected the general trend in fixed-interest securities.

Road transport shares have held steady, with Southdown at 96s., West Riding 44s. 6d., and Lancashire Transport 53s. 9d. B.E.T. deferred stock was £440.

Engineering and kindred shares came back with the general trend of markets. Vickers fell to 45s., Guest Keen to 51s. 4½d., and T. W. Ward were 75s. Among locomotive building and engineers Hurst Nelson were 57s. 6d. and Birmingham Carriage 37s. 3d. Charles Roberts moved back to 23s. 3d., Vulcan Foundry to 23s. 6d., and North British Locomotive to 17s. 6d. Beyer Peacock were 32s. and Wagon Repairs 5s. shares were 11s. 6d.

Traffic Tab'e of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1949/50	No. of week	Aggregate traffics to date: Total 1950/51	Aggregate traffics to date: Increase or decrease
South & Cen. America	Antofagasta ...	811	30.11.51	£ 138,730	+ £ 22,480	48	£ 5,916,570	+ £ 2,621,546
	Costa Rica ...	281	Oct., 1951	c1,244,055	+ c228,863	18	c4,947,302	+ c586,239
	Dorada	70	Oct., 1951	36,894	— 515	43	361,117	— 30,116
	Inter. Ctl. Amer....	794	Oct., 1951	$992 854	— $18 705	43	$10,938,552	— $262 880
	Paraguay Cent. ...	274	30.11.51	£368.074	+ £138,105	22	£7.364,263	+ £3 003.305
	Peru Corp. ...	1,050	Nov., 1951	$7,902,000	+ $325,000	22	$40.800.000	+ $2.017.000
	" (Bolivian Section)	66	Nov., 1951	Bs.16,086,000	+ Bs.2,474,000	22	Bs.75,805,000	+ Bs.19,219,000
	Salvador	100	Sep., 1951	c115,000	+ c40,000	13	c381,000	+ c113,000
	Taltal	147	Oct., 1951	$1,639,000	+ $317,000	18	$7,943,000	+ $2,142,700
Canada	Canadian National†	23,473	Oct., 1951	18,728,000	+ 664,000	43	172,143,000	+ 21,892,000
	Canadian Pacific† ...	17,037	Oct., 1951	13,467,000	+ 1,218,000	43	1,218,000	+ 15,250,000
Various	Barsi Light* ...	167	Oct., 1951	31,312	+ 7,657	29	243,592	+ 42,060
	Egyptian Delta ...	607	10.4.51	17,513	— 267	4	17,513	— 267
	Gold Coast ...	536	Aug., 1951	220,509	+ 16,972	21	1,280,126	+ 109,832
	Mid. of W.Australia	277	Sep., 1951	62,508	+ 23,733	13	169,896	+ 59,039
	South Africa ...	13,398	10.11.51	1,939,379	+ 124,159	32	60,812,644	+ 7,031,271
	Victoria	4,744	Aug., 1951	1,931,917	+ 45,412	9	—	—

Receipts are calculated at 1s. 6d. to the rupee † Calculated at $3 to £1